SDMS US EPA Region V

Imagery Insert Form

Document ID:



Some images in this document may be illegible or unavailable in SDMS. Please see reason(s) indicated below:

Specify Type of Document(s) / Comments:		
PHOTOCOPIES OF MA	APS	
Unless otherwise noted, th	RESOLUTION variations. ese pages are available in monochrome. The source do nent is available for viewing at the Superfund Record	
	Specify Type of Document(s) / Comments:	
	ghly sensitive information. Due to confidentiality, materiality the EPA Superfund Records Manager if you wish to	
	Specify Type of Document(s) / Comments:	/
:	Specify Type of Document(s) / Comments:	· · · · · · · · · · · · · · · · · · ·
	Specify Type of Document(s) / Comments:	
	_ Format. equipment capability limitations, the document page(s)	
Oversized or Due to certain scanning of	_ Format. equipment capability limitations, the document page(s) viewing at the Superfund Records center.) is not available in SDMS. The o
Oversized or Due to certain scanning of	_ Format. equipment capability limitations, the document page(s)) is not available in SDMS. The o
Oversized or Due to certain scanning of	_ Format. equipment capability limitations, the document page(s) viewing at the Superfund Records center.) is not available in SDMS. The o
Oversized or Due to certain scanning of document is available for	_ Format. equipment capability limitations, the document page(s) viewing at the Superfund Records center.) is not available in SDMS. The o

Rev. 07/10/02

ELLSWORTH INDUSTRIAL PARK SITE DOWNERS GROVE, ILLINOIS

SITE MANAGEMENT PLAN AND SAMPLING AND ANALYSIS PLAN

REVISION 0 - 8 October 2003

WORK ASSIGNMENT NO. 155-RICO-B51W

Prepared for:

U.S. Environmental Protection Agency 77 West Jackson Boulevard Chicago, Illinois 60604

Revision 0 – 8 October 2003 – Document Control Number RFW155-2A-AOBN

Prepared	•	Date:	
and	Kurt Fischer, P.G.		
Approved By:	Site Manager		
Approved By:		Date:	
	James M. Burton, P.E.		
	Program Manager	r	٠
Approved By:		Date:	<u>.</u>
	Brenda Lewis		
	Administrative Support Manager		

This document was prepared by Weston Solutions, Inc., expressly for U.S. EPA in accordance with U.S. EPA Region V Response Action Contract (RAC) – U.S. EPA Contract No. 68-W7-0026 and contains confidential business information. It shall not be released or disclosed in whole or in part without the express, written permission of U.S. EPA.



Weston Solutions, Inc.
Suite 500
750 East Bunker Court
Vernon Hills, IL 60061-1450
847-918-4000 • Fax 847-918-4055
www.westonsolutions.com

23 October 2003

Mr. Mazin Enwiya Work Assignment Manager U.S. Environmental Protection Agency - Region V 77 West Jackson Blvd. Chicago, Illinois 60604

U.E. EPA Contract No. 68-W7-0026 Work Assignment No. 155-RICO-B51W Document Control No. RFW155-3A-AOEY

Re: Draft Sampling and Analysis Plan

Ellsworth Industrial Park Site

Downers Grove, Illinois

Dear Mr. Enwiya:

Pursuant to your request, Weston Solutions, Inc. (WESTON®) is sending you 25 copies of selected portions of the draft Sampling and Analysis Plan (SAP) for the above referenced site. As we discussed, since this is for outside distribution purposes, this document consists only of Sections 1 and 4. Section 1 is the Introduction and describes the project objectives and applicable site background summaries. Section 4 consists of the Field Sampling Plan (FSP), which describes the scope of work, sampling locations and rationale, field methods and procedures. The Site Management Plan (Section 2), Quality Assurance Project Plan (Section 3), and Data Management Plan (Section 5) are not included with this deliverable.

Please contact me at (847) 918-4016 if you have questions or require further information.

Very truly yours,

Weston Solutions, Inc.

Kurt T. Fischer, P.G.

Site Manager

Enclosure

WA No.: 155-R. Section: 1 Revision: 0

Date: 8 October 2003

Page: 1 of 23

SECTION 1
INTRODUCTION

WESTON has prepared this document for the United States Environmental Protection Agency (U.S. EPA) for the site known as the Downers Grove Groundwater Investigation Site, also referred to as the Ellsworth Industrial Park site, in Downers Grove, DuPage County, Illinois. Figure 1-1 is a site location map. This document consists of a Site Management Plan (SMP), Field Sampling Plan (FSP), Quality Assurance Project Plan (QAPP), and the Data Management Plan (DMP). Together, the FSP, QAPP, and DMP represent the Sampling and Analysis Plan (SAP). The project plans contained herein were prepared under agreement with the U.S. EPA Contract No. 68-W7-0026 as described in the approved Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Revision 1) dated 28 July 2003 (WESTON, 2003).

1.1 OBJECTIVES

The investigation activities described in this document are being performed as Phase I of a RI/FS for the Ellsworth Industrial Park site. The objective of Phase I RI/FS activities is to conduct further screening work at additional properties both within and outside the Ellsworth Industrial Park boundaries to identify other potential properties that may have contributed to the groundwater contamination associated with the site. Data and information gathered during this phase, in combination with previously gathered data, will provide a basis for development of a detailed RI/FS work plan at a future date. These detailed RI/FS activities will be carried out in subsequent phases to provide and evaluate information to support an informed risk management decision regarding the most appropriate remedy for the site.

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 2 of 23

Phase I activities will investigate the presence and nature of volatile organic compound (VOC) contamination in soil and shallow groundwater at 28 selected properties, for which historical data and information compiled by the U.S. EPA and others have shown a potential for chlorinated solvent use. These properties are in addition to those previously identified and investigated during U.S. EPA and Illinois Environmental Protection Agency (IEPA) Site Assessment (SA) activities. Table 1-1 summarizes the 28 properties to be investigated as part of the Phase I RI/FS and Figure 1-2 shows the property locations and approximate property boundaries.

Weston Solutions, Inc. (WESTON) will furnish necessary personnel, materials, and services needed for, or incidental to, performing the Phase I RI/FS activities described in this document, except as otherwise specified herein.

1.2 DOCUMENT ORGANIZATION

Section 1 of this document provides the objectives and a summary of applicable background data and information. The SMP for the project can be found in Section 2. The SMP describes how site access, security, contingency procedures, management responsibilities, and investigative-derived waste will be managed. Section 3 consists of the FSP, which includes the investigation scope of work, summary tables of the field activities, chain-of-custody/field documentation procedures. sample packaging and shipping procedures, quality control issues, etc. Section 4 is the QAPP. Prepared in accordance with U.S. EPA QA/R-5, the QAPP describes the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that will be used to achieve the desired data quality objectives (DQOs). Section 5 is the DMP, which specifies the procedures for storing, handling, accessing, and securing data collected during the RI. Laboratory electronic data deliverable (EDD) formats are also discussed in the DMP.

Section: 1 Revision: 0

Date: 8 October 2003

Page: 3 of 23

1.3 BACKGROUND AND SITE HISTORY

The following discussion of site background and history was compiled from U.S. EPA-provided file review data and information and the Draft Records Compilation Report (Techlaw, 2003).

1.3.1 Site Location

The Downers Grove Groundwater Site is located in Downers Grove, DuPage County, Illinois. The site encompasses the area in which chlorinated-solvent contamination has been detected in groundwater. The approximate boundaries of the site are Burlington Avenue to the north, 63rd Street to the south, Lee and Springside Avenues to the east, and Interstate 355 (I-355) to the west. The site consists of residential, recreational, and commercial/light industry properties. The Ellsworth Industrial Park is located in the northern portion of the site, and it is within this area that the source(s) of the groundwater contamination is suspected. The Ellsworth Industrial Park is bordered on the north by Burlington Avenue; on the south by Elmore and Inverness Avenues; on the east by Belmont Avenue; and on the west by I-355.

1.3.2 Previous Investigations

Between spring and fall 2001, the IEPA performed a groundwater investigation on the east side of I-355 near Downers Grove in response to citizen concerns related to recent private-well sampling in neighboring Lisle. The investigation consisted of three rounds of residential-well sampling throughout the area. Approximately 495 private wells were sampled and analyzed for levels of volatile organic chemicals (VOCs). Sample results indicated elevated levels of PCE, TCE, and other related VOCs. Approximately 52% of the samples collected during Round 1 and Round 2 contained

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1 Revision: 0

Date: 8 October 2003

Page: 4 of 23

PCE or TCE above 5 parts per billion (ppb) (the federal drinking-water standards and the State of Illinois Maximum Contamination Limit [MCL]).

In response to these findings, the IEPA performed a cone penetration test (CPT) investigation within the Ellsworth Industrial Park (Parsons, 2001). The investigation used a CPT rig to log the shallow lithology in the area and collect groundwater samples at a variety of depths above the bedrock in order to evaluate the source area(s) of the chlorinated solvent releases. The area of investigation included only the southern and southeastern-most portions of the industrial park along portions of Wisconsin, Elmore, and Inverness Avenues. During the investigation, 28 groundwater samples were collected from 27 separate sampling locations within the industrial park. Of the 28 groundwater samples, one sample was found to contain TCE.

In February 2002, U.S. EPA and IEPA conducted Phase I SA activities at selected locations within the industrial park. The IEPA conducted boring and sampling activities using a Geoprobe unit outfitted with a membrane interface probe (MIP) for soil logging and sample collection. U.S. EPA performed a follow-up CPT investigation throughout the industrial park and selected areas east of the park. The CPT rig was used to advance stratigraphy borings, which defined the geology at each location as well as identified the presence of water-bearing zones within the unconsolidated overburden. Each boring was advanced to refusal, which ranged from approximately 12 to 80 feet bgs. A total of 44 locations were advanced using the CPT and Geoprobe MIP technology. Once the stratigraphy was characterized and the water-bearing zones were identified, depth intervals were selected for groundwater sampling. A total of 37 investigative groundwater samples were collected. Chlorinated solvents, including 1,1,1-TCA, PCE, TCE, and their common degradation products, were detected at several locations and at various concentrations within the industrial park. The highest concentrations were generally found to be present along Curtiss Street between Chase Street

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1 Revision: 0

Date: 8 October 2003

Page: 5 of 23

and Katrine Avenue. TCE was detected in shallow groundwater in this area at concentrations up to 218 microgram per liter (ug/L). The presence of TCE and PCE in shallow groundwater provided a potential link between source(s) in the industrial park and contamination observed in residential

wells downgradient of the site.

Based on the results of the Phase I SA, a Phase II SA was undertaken as a joint effort between U.S. EPA and IEPA to further characterize chlorinated solvent contamination in soil and groundwater and identify potential sources. Prior to field investigation activities, efforts were undertaken to gather and evaluate existing data and information on properties and businesses within the industrial park. This information was used to focus field investigative efforts on likely chlorinated solvent source facilities based on past and present use of these chemicals. In addition to focused investigation at specific facilities, a network of groundwater monitoring wells was also installed

throughout the industrial park to begin evaluating site hydrogeologic characteristics.

The results of the Phase II SA indicated that PCE and TCE were present at numerous and widespread locations and depths within the Ellsworth Industrial Park in soil at concentrations up to 500,000 ug/Kg, indicating the presence of probable source facilities nearby. PCE and TCE were also detected in groundwater in both glacial drift and bedrock aquifers at concentrations up to 190 ug/L. By comparison, the highest PCE/TCE concentrations observed in residential wells south of the site were typically around 15 ug/L. These data indicate that PCE/TCE appears to be migrating from source facilities within the industrial park through overburden soil, entering the bedrock aquifer system, and migrating in a downgradient direction towards the affected residences.

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 6 of 23

1.3.3 Summary of Existing Information and Records Review

Throughout the Ellsworth Industrial Park investigation process, U.S. EPA and IEPA have evaluated

available documents and records from numerous properties and businesses within the site to identify

current and previous users of chlorinated-solvent products. In October 2001, IEPA sent out

information-request letters to approximately 21 facilities that had been identified during their initial

door-to-door survey of the Ellsworth Industrial Park as using chlorinated cleaners/solvents or other

types of chlorinated materials. The information IEPA requested pertained to the site activities

related to the purchasing, receiving, processing, storing, treating, disposing, or otherwise handling

of hazardous substances. U.S. EPA reviewed this information along with available records from the

U.S. EPA Records Center in order to develop a list of facilities in the industrial park identified as

using chlorinated solvents.

U.S. EPA has continued this process into the Phase I RI/FS stage to re-examine existing information

and expand the review to identified properties outside the Ellsworth Industrial Park. The following

discussion provides a brief summary of the results of these background investigation activities

undertaken by U.S. EPA prior to the Phase I RI/FS investigation.

Dyna Gear, Inc.

Dyna Gear, Inc., is located at 2500 Curtiss Street and is an aftermarket and original manufacturer

of automotive equipment including gears. The property is owned by NBD Trust Company. The

information IEPA obtained from an Information Request Letter sent on 3 October 2001 indicates

the building was constructed in 1987 and Dyna Gear has occupied it since that time. The facility

consists of a one story warehouse and manufacturing building. All chemicals are purchased from

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 7 of 23

Perkins Products and ZEP Products, and all waste is disposed of by Beaver Oil Company. No solid

waste has been removed from the company in the last 5 years and the company indicated that it has

purchased no chlorinated solvent/cleaner chemicals. Previous investigations at the facility include

a Phase I Environmental Site Assessment (ESA) performed in June 1998 and the facility was found

to be in good environmental condition. A title search was conducted for the ESA and there was no

indication the property had been used for storage or disposal of hazardous waste.

U.S. EPA Phase I SA activities included soil boring sampling at six locations around the perimeter

of this property in February 2002. A total of five groundwater samples were collected from various

depths. Volatile organic compounds (VOCs) detected include acetone, 2-butanone, chloroform,

benzene, 1,1,1-trichloroethane (1,1,1-TCA), 1,2-dichloroethane (1,2-DCA), trichloroethene (TCE),

toluene, and tetrachloroethene (PCE).

MXL Industries, Inc.

MXL Industries, Inc. is located at 2300 Wisconsin Street and is a plastic injection molding and tool

& die manufacturer. The company owns the property and has been operating at the location since

1998. According to the 2001 IEPA survey, MXL indicates they did not use chlorinated chemicals

at the time of the survey. Lubricating oils and naphtha were used and were handled by Safety Kleen,

Inc.

The former occupant of this property was JL Clark Atlas Tube, a manufacturer of toothpaste tubes,

who operated at the site from 1967 to 1997. The property was sold to MXL in 1998. The response

to the U.S. EPA CERCLA 104(e) request indicated Atlas Tube used 1,1,1-TCA (between 10 and

30%), PCE in carpet shampoo (1%), and an unspecified chlorinated solvent (33.5%) in its machine

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 8 of 23

shop. According to the response, there were no known leaks, spills, or releases of hazardous

materials at the facility.

Flexible Steel Lacing Company (Flexco)

Flexible Steel Lacing Company, located at 2525 Wisconsin Avenue, is a manufacturer of flexible

steel lacings, conveyor belt fasteners, and belt products. Flexco has been at this location for over

30 years. The information IEPA obtained indicated that the facility used TCE until approximately

1990 in order to generate oil and water coolant. The firm also used naphtha parts cleaner. Waste

products include waste naphtha and 9644 Solvent 150, which may contain TCE and PCE.

According to the response to the IEPA Information Request letter, Flexco began operations at the

facility in 1967. In 1981, Flexco purchased additional land adjacent to the facility at 2655

Wisconsin Avenue from Lovejoy, Inc. Flexco indicated that they do not store or handle hazardous

waste substances at the facility other than small amounts of paint and janitorial supplies. Spent

petroleum and hydraulic fluids are stored in 55-gallon drums, which are collected by Beaver Oil for

reprocessing.

From approximately 1968 to 1992, Flexco operated a vapor degreaser to remove excess oil from

parts. This operation used approximately 5 drums of TCE per month. Virgin solvent was delivered

to the facility by Baron Blakeslee, which provided a storage tank for the solvent, and also retrieved

spent solvent. Solvents were stored in drums next to the vapor degreaser until 1971 when a 250-

gallon storage tank was installed. Spent TCE was stored in drums in the heat treat work area. A

cold trap solvent saver was installed in 1982 which reduced solvent use to approximately 4 drums

per quarter. The vapor degreaser was removed in 1992 along with the 250-gallon storage tank and

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 9 of 23

the former degreaser location was cleaned and filled with concrete. Remaining solvents were

disposed off-site.

The response to the U.S. EPA CERCLA 104(e) Information Request letter indicated floor drains are

connected to the storm sewer system; however, over time, Flexco has gradually sealed many of the

floor drains at the facility.

Lovejoy Industries

Lovejoy Industries is currently located at 2655 Wisconsin Avenue, and is a manufacturer of

couplings for transmissions, industry, and machine parts. Responses to the U.S. EPA 104(e)

indicated that Lovejoy Industries has operated at two additional address within the Ellsworth

Industrial Park at various time periods. Lovejoy has operated at its 2655 Wisconsin Avenue facility

continuously since 1971. Lovejoy has also operated at 2431 Curtiss Street (see Contemporary

Control Systems summary below) and at an additional facility (Lovejoy Electronics) at 5411

Walnut.

The following information is believed to be related to the 2655 Wisconsin Avenue location.

According to responses to U.S. EPA information requests, Lovejoy indicated they did not use

chlorinated chemicals. However, an air permit for a sintering furnace has been issued and generates

coolant and waste. Solid wastes were not stored outside the building, and no waste piles, landfills.

surface impoundments, lagoons, or pits are located on-site. Unspecified hazardous materials were

used in four "black oxide" tanks located at the 2655 Wisconsin Avenue facility. Hazardous waste

from the "black oxide" line was collected in drums located near an evaporator along the east wall

of the building. There are no underground storage tanks (USTs) on the property. One 600-gallon

I:WO\RAC\155\33030S-1INTRO,WPD

RFW155-2A-AOBN

Section: 1 Revision: 0

Date: 8 October 2003 Page: 10 of 23

waste oil AST is present on the east side of the building. Small amounts of methylene chloride were used for a short time period. Small amounts were placed on a towel used to clean parts and it was stated that the solvent was consumed in the process. Manifest documentation from 1988 to 2001 do not indicate TCE or PCE waste generation. However, black oxide waste stream samples collected in 1992 showed the presence of PCE in one sample at 0.021 mg/L during a facility investigation. No recognized environmental conditions were noted during a 1997 Phase I ESA.

No information is available regarding Lovejoy ownership or operations at its 5411 Walnut Street facility.

Burlington Northern Railway Easement

IEPA and U.S. EPA information requests were sent to the Burlington Northern and Sante Fe Railway Company in 2001 and 2002. Responses indicated that the company did not have any information related to a 1973 train derailment accident. A newspaper article dated 7 March 1973 in the Downers Grove Reporter describes an 18 car derailment took place at Belmont Road just south of Warren Avenue on 4 March 1973. Damage cost estimates were included for damage to tracks, buildings, and rail platform. No other information was available.

Burnside Construction

Burnside Construction, located at 2400 Wisconsin Avenue, has owned and occupied the property for nine years and is in the home building business. According to the 2001 IEPA survey, the company indicates it has never used chlorinated chemicals; however, they do generate some naphtha and waste oil which is processed by Safety Kleen.

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003 Page: 11 of 23

According to the U.S. EPA 104(e) response, the property was previously occupied by Suburban Moving and Storage Company (Suburban Self Storage). Suburban owned or leased this property from 1971 through 1994. Information indicates a groundwater monitoring well was installed at the facility in 1994; however, no further information is available.

CVP Systems, Inc.

CVP Systems, Inc., located at 2518 Wisconsin Avenue, has been present at the property for 13 years and assembles vacuum packaging equipment for the food industry. According to the 2001 IEPA survey, CVP stated they did not use chlorinated chemicals; however, a small parts cleaner was in use over seven years ago. The response to the U.S. EPA 104(e) indicates CVP has leased the property since 1984. From 1991 through 1998, Safety Kleen provided a tank for disposal of lubricant used for metal working machines and a parts washer. CVP states they have never used, purchased, or stored hazardous materials within the Ellsworth Industrial Park going back to 1950. No spills or facility investigations have been performed at the property.

Contemporary Control Systems, Inc.

Contemporary Control Systems, Inc. (CCSI), located at 2431 Curtiss Street, is a manufacturer of computer PC boards, and has leased the property from the Arrow Gear Company for the past 2 ½ years. According to the 2001 IEPA survey, the company indicated they have never used chlorinated chemicals at the facility. The company has operated at other locations in the area, including 2733 Curtiss Street from 1985 to 1987, and 2512 Wisconsin Avenue from 1988 to 1997. The company has apparently used degreasers in the past, but discontinued their use in 1987. According to the response to the U.S. EPA 104(e), CCSI has never used TCE or PCE containing solvents. The only

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W Section: 1

Section: 1 Revision: 0

Date: 8 October 2003 Page: 12 of 23

hazardous materials used are lead in a solder material. Hazardous materials are removed from the

facility by Alpha Fry Metals.

Lovejoy Industries has been identified as a prior occupant of the 2431 Curtiss Street location, and

used the facility as a machine shop. See also the descriptions provided above for Lovejoy Industries.

No further information is available.

Spannagel Tool & Die

Spannagel Tool & Die, located at 2732 Wisconsin, manufactures tools and dies and has owned the

property for 34 years. The company has indicated that it does not use chlorinated chemicals at the

facility. No further information is available for this property.

Molex Incorporated

Molex, Inc. (Molex) is a manufacturer of electric and electronic connectors, which involve metal-

plating and injection-molding operations. The company has two locations within the industrial park,

one at 5225 Walnut Avenue (Molex Fiber Optics) and the second at 5224 Katrine Avenue.

Molex has occupied the 5225 Walnut Avenue facility for over 12 years. The first 10 years, the

facility was used as a warehouse, and is currently used for manufacture of fiber optic cable

assemblies and molding operations. The IEPA survey indicated that a 2,500-gallon UST containing

mineral spirits was removed in 1999. The soil surrounding the tank was found to be contaminated

and was remediated and tested for cleanup verification; however, analysis for PCE/TCE was not

conducted as part of this remediation. Plating operations were also conducted at this property prior

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 13 of 23

to 1993 which generated a nickel sludge. Mineral spirits were also used in a stamping operation.

Three shallow monitoring wells are present on the Walnut Avenue property, but no specific well

information (depth, boring logs, sample data, etc.) was available. These wells were sampled during

the U.S. EPA Phase II SA.

Little information is available for the Katrine Avenue property other than Molex purchased the

property from a bank trust in 1964 and have indicated that chlorinated chemicals are not used at the

property.

A third Molex facility is located at 2800 Hitchcock Avenue which had only been leased for eight

months at the time of the 2001 IEPA survey. No further information is available for this facility.

Bison Gear and Engineering Corporation

Bison Gear and Engineering Corporation, previously occupied the property at 2424 Wisconsin

Avenue, and was a manufacturer of gears, shafts, and aluminum castings used for gear and electric

motors. A company called Flowserve is the current occupant and has been present for

approximately 4 years. The response to the U.S. EPA 104(e) indicates Bison leased the property

from 1976 to 1997. The company used 1,1,1-TCA (in waste petroleum naphtha) to clean gears and

for a cutting process in a closed loop system. In 1986, approximately 2,200 gallons of waste

petroleum naphtha was generated. Solvents were stored in drums. Cutting oil was drained from

machinery once or twice a year and removed by Beaver Oil. Waste naphtha was disposed of by

Safety Kleen. The company indicated they stopped using solvents in the late 1980s or early 1990s.

A parts washing machine was purchased in 1986 to reduce the amount of waste petroleum naphtha

generated. An IEPA inspection in 1991 noted petroleum stained soil at the property adjacent to a

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1 Revision: 0

Date: 8 October 2003 Page: 14 of 23

drum storage area. Contaminated soil was removed in May 1991 under IEPA oversight. A June 1991 site inspection by the DuPage County Department of Environmental Concerns found the property to be in compliance with applicable environmental regulations.

Alleged Dumping Area

The alleged dumping area is located between 2537 Curtiss Street (Ames, Inc.) and 2538 Wisconsin Avenue (Norwood Marketing). A report from a citizen to U.S. EPA personnel alleged that five gallon containers of chemicals were dumped in the woods approximately 13 to 15 years ago. No further information is available.

Chase-Belmont Properties

The Chase-Belmont properties consists of an office park type complex with addresses between 5000 to 5014 Chase Street. Multiple tenants have been located at the property dating back to 1973. No further information is available.

Former Wastewater Treatment Plant

The former wastewater treatment plant (WWTP) is located along St. Joseph Creek south of the intersection of Glenview and Curtiss Streets. This property is believed to be owned by the Downers Grove Park District. No other information is available.

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003 Page: 15 of 23

Maple Plaza Cleaners

Maple Plaza Cleaners, located at 2265 Maple Avenue, is a dry cleaning service which has been

present at the location for 3 ½ years. According to the responses to the 2001 IEPA Information

Request, the business is a conditionally exempt, small quantity generator. The facility uses less than

140 gallons of PCE a year for its dry cleaning operations. No permits or spills were identified for

the facility; however, drilling and testing was conducted in 1998 inside and outside the facility. No

evidence of contamination was found. In June 2002, the facility was found to be in compliance with

state and federal regulations and requirements of the Dry Cleaners Environmental Trust Fund of

Illinois. No further information is available.

C&C Machine Tool Services

C&C Machine Tool Services, Inc. (C&C), located at 5024 Chase Street, is a repair company for

electrical components of printing presses, and has been at the property for five years. Former

occupants are unknown. The 2001 IEPA survey indicated the company used 1,1,1-TCA and PCE.

and generated various listed hazardous waste (D001, D0035, D0039, F003, F005, and F007). C&C

has leased the property from Chase-Belmont Properties since 1996. Paints and solvents are

routinely used in this business. Used paint, filters, and solvents are stored in containers supplied by

Safety Kleen, which collects them for disposal. No USTs or ASTs are located on the property.

Wastewater and stormwater are disposed through the Downers Grove wastewater system. A paint

spray booth was also located at the property. The company has indicated they have not used

chlorinated chemicals during their occupation of the property; however, the company received

several LDR notifications from Safety Kleen for parts cleaner wastes picked up from the facility

which contained PCE. PCE-containing (0-1%) laquer thinners were also used.

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1
Revision: 0

Date: 8 October 2003 Page: 16 of 23

Hahn Graphics

Hahn Graphics, formerly located at 5023 Chase Avenue, conducts off-set printing services and has leased the property since 1987. The property is owned by Chase-Belmont Properties according to the IEPA information request. The business owner has indicated that there are no waste pits or ponds at the property and all materials used are purchased in gallon increments. One solvent product was identified as being used consisting of Safety Kleen 105 Solvent which contains PCE at 0 to 0.2990 by weight. The information response indicates some unspecified cleaning agents were picked up for recycling by Safety Kleen. The former occupant of the property was a computer company.

Auto Nation

Auto Nation, also known as the Joe Madden Ford Auto Body Shop, is located at 5126 Walnut, owns the property and has been at this location for 13 years. The company indicated in their response to the U.S. EPA 104(e) information request that the property was vacant prior to purchase by Joe Madden Ford. The company operates an auto body repair shop. In 1999, Joe Madden Ford entered into an asset purchase agreement with Auto Nation, Inc. and AN/MF Acquisition Corp. to purchase the assets of Joe Madden Ford. The Madden Partnership owns the property and Auto Nation leases the facility. The facility contains two paint spray booths and a mixing room. Spent solvents, antifreeze, oils, and waste paints are containerized and recycled by outside vendors. A parts washer is also located onsite which is serviced by Safety Kleen. The company indicated there are no waste piles, landfills, impoundments, lagoons, USTs, or ASTs at the site. Santary and wastewater is routed through catch basins or oil-water separators prior to discharge to the Village of Downers Grove wastewater system. According to the IEPA response, the only chlorinated chemicals used are paint

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003

Page: 17 of 23

thinner for paint spray gun cleaning. Approximately eight gallons of this material is used on a

monthly basis. A Phase I ESA was performed at the facility in October 1999 which noted evidence

of spills (oil and laquer paint) around storage drums inside and outside the body shop. Used

batteries and tires were also noted as being discarded on the property. It is was noted in the response

that spills and debris have since been removed. A Phase II ESA was also performed which revealed

no contamination in testing areas. The scope of Phase II activities is not known.

Ketone Automotive

Ketone Automotive is located at 4935 Belmont Road. The company has been at the location and

leased the property for more than 17 years. Ketone Automotive is a retailer of paint and paint

related products. There are no manufacturing operations conducted on the property; however,

mixing operations occur. According to the response to the 2001 IEPA survey, the company

indicated chlorinated chemicals are not used at the property; however, some paint products

contained chlorinated components and generate waste. Former occupants are undocumented,

however, information suggests a former auto body shop occupied the property. No further

information is available.

Bales Mold Service

Bales Mold Service, Inc., located at 2824 Hitchcock Avenue, is a plastic injection mold refinisher,

and includes chrome and nickel plating operations. They are the owner of the property and have

been present for 16 years. Former occupants are not known. According to information provided

to IEPA, a TCE vapor degreaser was located at the property at the time of the survey (purchased in

February 2000). The company also indicated that it generates waste hydrochloric acid (HCl), nitric

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1

Revision: 0

Date: 8 October 2003

Page: 18 of 23

acid (HNO3), and potassium hydroxide (KOH) from refinishing operations. Several state and local

permits are on file for the facility including Industrial Wastewater Discharge, Lifetime Operating

Permit Injection Mold Servicing, and construction permits for plating operations. Previous facility

investigations between 1997 and 2001 indicated the presence of chromium, nickel, lead, zinc, and

copper in soil samples. No further details of these investigations were available.

MB Cleaners

MB Cleaners is located at 2754 Maple Avenue. No additional information is available for this

property.

Maple Grove Automotive

Maple Grove Automotive, Ltd. is located at 2315 Maple Avenue. No additional information is

available for this property.

K&C Services

K&C Services (K&C), located at 5240 Belmont Road, is a machine tool repair company. The

company leases the property and has been at the location for 10 years. The property is owned by

Arrow Gear, which was also a former occupant of the property. According to the response to the

2001 IEPA survey, the company does not use chlorinated chemicals. A commercial product (Simple

Green) is used for any required degreasing. No further information was available.

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1 Revision: 0

Date: 8 October 2003

Page: 19 of 23

Litton Systems

Litton Systems, Inc. (also known as Liberty Copper & Wire and Magnetek) formerly occupied the property at 2333 Wisconsin Avenue. The property is currently occupied by Suburban Self Storage, a self-storage facility, which has occupied the property since approximately 1988. Information provided in the U.S. EPA 104(e) information request sent to Litton Systems indicated that Liberty Copper & Wire was incorporated in 1956, acquired by Jefferson Electric Company in 1970, and merged into Litton Systems in 1972. The company was then sold to Magnetek, Inc. in 1984. The company's response also stated that Litton Systems no longer possessed information regarding the use of chlorinated chemicals and indicates that all records regarding the operations of Liberty Copper & Wire were transferred to Magnetek at the time of the sale.

The response to the U.S. EPA 104(e) information request sent to Suburban Self Storage contained environmental information about previous operations by Magnetek and Liberty Copper & Wire. Review of information from the U.S. EPA CERCLA Records Center indicated that the facility used toluene, xylene, cresylic acid, and methanol. Additional information from a 1993 U.S. EPA site inspection documented waste generation at the facility including waste enamel, solvent, electroplating sludge, phenol, and urethane. Corresponding waste codes associated with waste generation identified above include F003, F004, F005, F006, D001, U188, and U238. In 1985, Liberty Copper & Wire generated approximately 9,000 pounds of waste enamel and solvent which was shipped off-site. The site was previously regulated under RCRA. During RCRA closure activities soils, were found to be contaminated with xylene (57,100 ppm). A Phase I ESA was conducted for the property in 1997 in which additional testing was recommended for xylene and

I:WO\RAC\155\33030S-1INTRO.WPD

RFW155-2A-AOBN

Section: 1 Revision: 0

Date: 8 October 2003 Page: 20 of 23

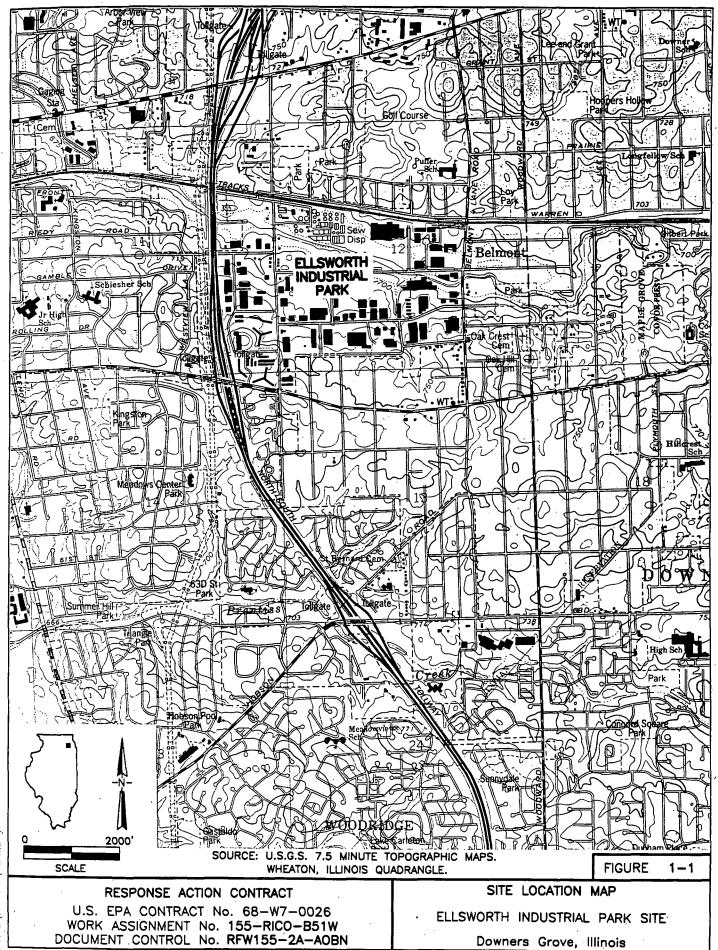
PCE contamination; however, no further information was available. Review of historical information provided by Environmental Data Resources, Inc. (EDR) indicated that three 4,000-gallon USTs and one 5,000-gallon UST containing hazardous substances have been closed.

METRA Site No. 1

The METRA site No. 1 is located on the northeast corner of Belmont Road and Warren Avenue (just south of 4935 Belmont Road). The property currently consists of an asphalt and gravel parking facility for the METRA station. No further information is available for this property.

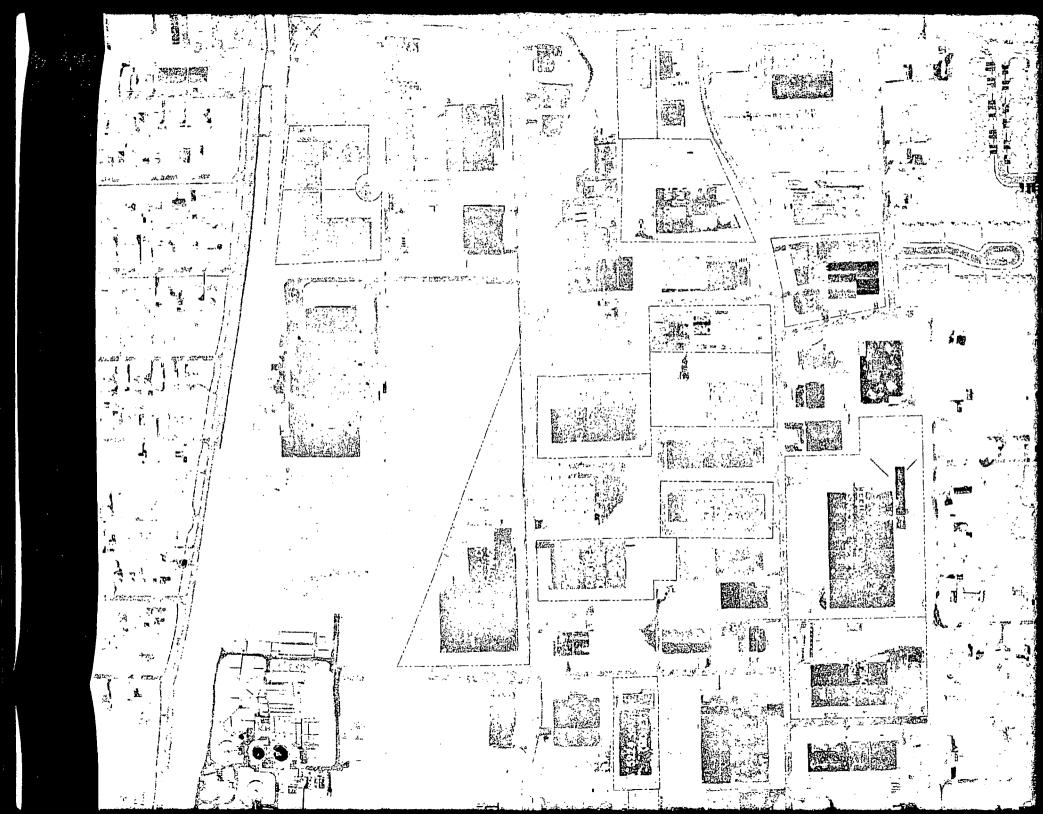
METRA Site No. 2

The METRA site No. 2 is located on the north side of Ketone Automotive (just north of 4935 Belmont Road). This property consists of a long, narrow gravel lot currently used for parking. No further information is available for this property.

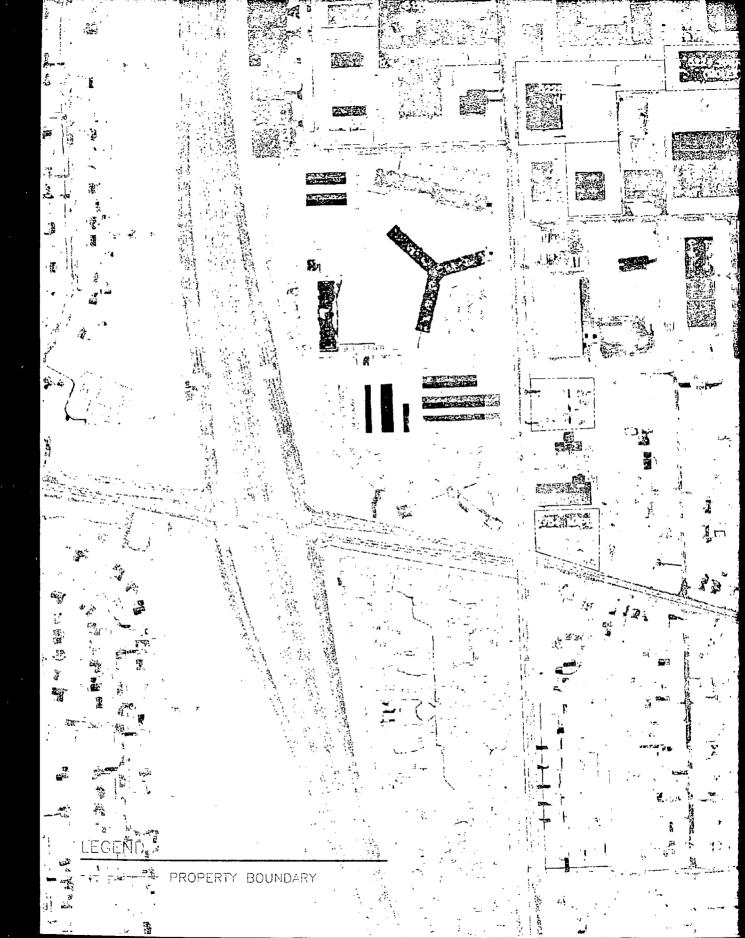


1 \ CAD9.5\ SYMBCL\ \CPC dx













Ellsworth Industrial Park
Draft Site Management Plan
WA No.: 155-RICO-B51W

Section: 1 Revision: 0

Date: 8 October 2003 Page: 23 of 23

TABLE 1-1

SITE SUMMARY LIST ELLSWORTH INDUSTRIAL PARK SITE DOWNERS GROVE, ILLINOIS

Property Identi	fication	Address/Location
1	Dyna Gear	2500 Curtiss Street
2	MXL Industries, Inc.	2300 Wisconsin Avenue
- 3	Flex Steel	2525 Wisconsin Avenue
4	Lovejoy Industries/LJ Inc., Gear Division	5411 Walnut Avenue
5	Lovejoy Industries/LJ Inc., Gear Division	2655 Wisconsin Avenue
6	Burlington Northern Railway easement and right-of-way	Easement and right-of-way at intersection of Belmont and Warren Streets
1	Burnside Construction	2400 Wisconsin Avenue
8	CVP Systems, Inc.	2518 Wisconsin
9	Contemporary Control Systems, Inc. (Former Lovejoy)	2431 Curtiss Street
10	Spannagel Tool & Die	2732 Wisconsin Avenue
11	Molex	5224 Katrine Avenue
12 .	Molex	5225 Walnut Avenue
13	Bison Gear and Engineering Corporation (Flowserve)	2424 Wisconsin Avenue
14	Alleged dumping, woods area between Norwood and Ames	Property between 2538 Wisconsin and 2537 Curtiss
15	Chase-Belmont Properties	5000 to 5014 Chase Avenue
. 16	Former WWTP	South of intersection of Curtiss and Glenview Roads
17	Maple Plaza Cleaners	2265 Maple Avenue
18	C&C Machine Tool Services	5024 Chase Street
19	Hahn Graphics	5023 Chase Street
. 20	Auto Nation	5126 Walnut Street
21	Ketone Automotive	4935 Belmont Road
22	Bales Mold Service	2824 Hitchcock Avenue
23	MB Cleaners,	2754 Maple Avenue
24	Maple Grove Automotive, Ltd.	2315 Maple Avenue
. 25	K&C Services	5240 Belmont Road
26	Litton Site (Liberty Copper & Wire, Magnetek)	2333 Wisconsin Avenue
27	METRA Site 1	Belmont Road (vicinity 4935)
28	METRA Site 2 ~-	Belmont Road (vicinity 4935)

f:\WO\RAC\\155\\33030T1-1.XLS

SECTION 2

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 3

THIS PAGE INTENTIONALLY LEFT BLANK

Ellsworth Industrial Park Draft Field Sampling Plan WA No.: 155-RICO-B51W

Section: 4 Revision: 0

Date: 8 October 2003

Page: 1 of 49

SECTION 4

FIELD SAMPLING PLAN

4.1 <u>INTRODUCTION</u>

The Phase I RI/FS field investigation for the Ellsworth Industrial Park site will seek to determine additional potential sources related to the previously defined hazardous constituents at the site. The data collected during the field investigation will be used to provide technical support for the development and evaluation of remedial alternatives during the feasibility study (FS) process. The field investigation consists of the following activities:

- Geological investigations
- Hydrogeological investigations

This field sampling plan (FSP) presents the details of the field activities, discusses individual sampling rationale, and provides the field sampling procedures and protocols. Specifically, the FSP is organized as follows and addresses the following:

- Section 4.2-Sample Network Design and Rationale
- Section 4.3-Field Investigation Protocols
- Section 4.4-Field QC Samples
- Section 4.5-Sample Numbering System
- Section 4.6-Sample Documentation and Tracking
- Section 4.7-Sample Handling

Ellsworth Industrial Park Draft Field Sampling Plan WA No.: 155-RICO-B51W

Section: 4 Revision: 0

Date: 8 October 2003

Page: 2 of 49

• Section 4.8-Sample Team Organization

• Section 4.9-Management of Investigation-Derived Wastes

Section 4.10-Sample Container Procurement

4.2 SAMPLE NETWORK DESIGN AND RATIONALE

The objectives of the field investigation at the site is to conduct further screening work at properties both within and outside the Ellsworth Industrial Park boundaries to identify other potential properties that may have contributed to the groundwater contamination associated with the site. Soil and groundwater samples will be collected from the 28 predetermined study properties and analyzed for VOCs.

Proposed field boring and sampling locations are identified on Figures 4-1 through 4-11. Boring and sampling locations were selected based on a review of available background data and information for each property, which included the potential for use of chlorinated solvent constituents, storage characteristics, waste storage or accumulation areas, etc. Historical aerial photographic analysis was also used to select boring and sampling locations. The description and rationale for each boring location is included in Table 4-1. The field locations will be identified and labeled with white paint prior to commencement of field activities. Adjustments to the proposed boring locations may alter slightly based on buried utilities at the sites, or other access limitations.

Exact measurements (vertical and horizontal) of boring and sample locations will be completed post boring execution. The U.S. EPA FIELDS group will survey boring and sampling locations using sub-meter accuracy GPS equipment.

Ellsworth Industrial Park
Draft Field Sampling Plan
WA No.: 155-RICO-B51W

Section: 4 Revision: 0

Date: 8 October 2003

Page: 3 of 49

4.2.1 Geological Investigations

Subsurface soil samples and downhole logging measurements will be used to characterize the subsurface contamination, the vertical extent of contamination, and the subsurface geology at each boring location. A total of 148 soil borings will be drilled and sampled during Phase I RI/FS field activities, with each of the 28 sites consisting of three to seven boring and sampling locations as shown on Figures 4-1 through 4-11. Two subsurface soil samples will be collected from each boring. To allow for additional discretionary soil sampling based on logging and field observations, it is assumed that one optional additional investigative soil sample may be collected at up to half the scheduled boring locations. Therefore, during this Phase I RI/FS, up to a maximum of 370 independent investigative subsurface soil samples may be collected during the investigation from a total of 28 sites. Corresponding quality control samples (field duplicates and MS/MSD samples) will be collected based on the frequencies described in the QAPP (Section 3). An estimated total of 407 samples (investigative and QC) will be collected during Phase I of the RI/FS investigation as shown on Table 4-2.

Downhole stratigraphic logging and VOC detection will be conducted by utilizing a Geoprobe® (or equivalent) equipped with a Membrane Interface Probe (MIP) and electrical conductivity (EC) system. The MIP/EC equipped probe will be advanced to the required boring depth of 30-feet bgs while taking continuous readings. Based on the results of the field screening, two to three independent subsurface soil samples will be collected from the vertical zones that exhibit the highest VOC readings. Each soil sample will be analyzed for VOCs. In the event that no defining VOC characteristics are observed with the MIP/EC logging equipment, two confirmation soil samples will be collected. Depths will be selected by the field geologist and will be based on encountered stratigraphy, presence of saturation, etc. It is expected that one sample will be collected in the upper

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003

Page: 4 of 49

10 feet and a second sample will be collected at a deeper depth towards the base of any granular deposits encountered or just above an identified water table. If a water (perched or otherwise) is encountered, soil samples may be collected just above or below, if possible.

The results of the sample screening and downhole logging will be compared to the fixed laboratory analytical results to determine the vertical profile of subsurface contamination and the homogenous or heterogeneous nature of contamination. The VOC analyses will be used to determine the extent of contamination at the site and also determine whether the materials should be considered hazardous.

4.2.2 Hydrogeological Investigations

Groundwater quality and flow conditions will be assessed to further define the groundwater migration pathway. Water table elevation measurements will be collected to further delineate the direction of groundwater flow and hydraulic gradients within the investigation area. Stratigraphic information obtained during the Geoprobe® investigation will be used to identify potential groundwater migration pathways. Groundwater grab samples will be collected using Geoprobe® equipment to determine the presence and extent of groundwater contamination.

One groundwater sample will be collected at each of the scheduled 148 boring locations. To allow for additional discretionary groundwater sampling based on logging and field observations (é.g., if separate and distinct groundwater horizons are identified), up to one additional investigative groundwater sample may be collected at up to one-quarter (37) of the testing locations. Therefore, a total of 185 investigative groundwater samples may be collected as part of Phase I RI/FS field activities at the 28 properties. Corresponding quality control samples (field duplicates, field blanks,

I:\WO\RAC\155\33030S-4FSP.WPD

REWISS-2A-AORN

Ellsworth Industrial Park
Draft Field Sampling Plan

WA No.: 155-RICO-B51W Section: 4

Revision: 0
Date: 8 October 20

Date: 8 October 2003 Page: 5 of 49

trip blanks, and MS/MSD samples) will be collected based on the frequencies described in the QAPP (Section 3). All groundwater samples will be analyzed for VOCs by CLP SOW OLC03.2.

The water table elevation, stratigraphic information, and the analytical sample results will be used together to assess site hydrogeological conditions and to determine if site contaminants have impacted the shallow groundwater quality (less than 30 feet bgs).

4.2.2.1 Groundwater Elevation Measurements

As part of hydrogeological investigation activities, one round of groundwater elevation measurements will be recorded for all existing known monitoring wells within the Ellsworth Industrial Park site for which access can be obtained. The depth to the water surface in each well will be measured with a water level indicator. Monitoring well locations have previously been identified and/or installed during the U.S. EPA and IEPA Site Assessments. Monitoring well locations are shown on Figure 4-12. Water level elevations will be calculated from available vertical survey data and depth to water measurements and will be plotted to create groundwater potentiometric surface maps.

4.3 FIELD INVESTIGATION PROTOCOLS

The following sections detail the procedures that will be followed during the field investigation at the Ellsworth Industrial Park site. Sample container preservation and volume requirements are outlined in Section 4.7.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003 Page: 6 of 49

4.3.1 Geological Investigations

4.3.1.1 Soil Boring, Downhole Logging, and Sampling

Soil Boring Geoprobe Procedures

Soil borings will be required for subsurface soil sampling, subsurface investigative MIP, and electrical conductivity logging. The proposed number of samples and type of analysis for soil boring samples is presented in Table 4-2.

The borings will be advanced using Geoprobe® (or equivalent) rig equipped with MIP and EC sensors. A qualified firm will be subcontracted to complete the soil borings. Decontamination will be in accordance with Subsection 4.3.3. All work will be under the direction of a WESTON field geologist. The following procedures will be used:

- Before commencing soil boring activities at any location, the subcontractor will decontaminate the working end of the Geoprobe rig, all Geoprobe equipment, and tools using a high-pressure steam cleaner. The subcontractor will avoid placing equipment, tools, and materials on the ground during the soil boring activities. The standard decontamination protocol for investigative boring equipment is presented in Subsection 4.3.3.
- A Geoprobe rig using 1.5-inch diameter rods will advance the borings to the desired depths. Geoprobe rigs must be capable of entering multi-terrain areas as needed based on site conditions.
- Each boring location will be continuously logged using MIP/EC. The soil conductivity will be measured by utilizing a dipole measurement arrangement in the MIP where an alternating electrical current is passed form the isolated pin at the center of the probe to the probe body. The voltage response of the soil to the

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0 Date: 8 October 2003 Page: 7 of 49

imposed current is measured across the same two points. The probe measures soil conductivities ranging from 5 to 400 mS/m. Soil stratigraphy will be defined using the soil conductivity portion of the MIP probe, where lower conductivity measurements relate to sands and gravels and higher conductivity measurements relate to silts and clays.

- The permeable membrane portion of the MIP is used to detect VOCs in both saturated and unsaturated soils during its advancement. VOCs in the subsurface come in contact with the heated surface of the MIP polymer membrane and partition (absorb) into the polymer membrane. VOCs in the gaseous, dissolved, solid, or free-product phase can partition into the membrane. Once VOC molecules are sorbed onto the membrane, they move by diffusion across the membrane to areas of lower concentrations. Movement across the membrane is very rapid because it is heated from 80-125 degrees Celcius and is relatively thin. Once through the membrane, the VOCs partition into the carrier gas which is in contact with the back side of the membrane. It takes approximately 25-35 seconds for the carrier gas to travel through the MIP trunk line before it reaches the on board photoionization detector (PID), used to quantify the total VOC concentration.
 - Soil samples will be collected from two to three depths at each soil boring location. Those locations will be identified during the initial investigation utilizing the MIP technology. Samples will be collected from an additional boring immediately adjacent to the original boring utilizing standard Geoprobe soil sampling tools and equipment technology without the MIP attached (discussed in next section).
- Each MIP/EC boring will continue to a depth of 30 feet bgs, or until probe refusal.
- Soil borings will be abandoned by injecting a bentonite grout into the borehole using tremmie methods. Alternately, if the borehole does not significantly collapse, granular bentonite may be used to abandon boreholes. Any remaining soil cuttings will be placed in a 55-gallon drum and managed according to the requirements specified in Section 4.9.

Section: 4 Revision: 0

Date: 8 October 2003

Page: 8 of 49

Soil Boring Sampling Procedure

Soil samples will be collected by the secondary Geoprobe rig at the depths specified during the

MIP/EC investigation. The samplers (Macrocore) and associated equipment that contacts the

samples will be decontaminated between samples in accordance with the requirements outlined in

Subsection 4.3.3. Following removal from the borehole, the disposable Geoprobe Macrocore liner

(polyethylene) will be opened on a clean surface (e.g., polyethylene sheeting). Each core will be

qualitatively screened for VOCs utilizing an Organic Vapor Monitor (OVM).

The number of samples and the types of analyses are shown in Table 4-2. Based on the results of

the sample logging with the MIP/EC and field screening with an OVM, two to three soil samples

will be collected from each borehole at those depths identified as most likely to contain VOCs.

Sample intervals retained for laboratory analysis will be collected according to the following

protocol. For VOA samples, sample collection will commence immediately upon opening the

Macrocore sampler disposable liner in order to minimize the loss of any VOCs. Sample material

from the selected undisturbed sample interval will be collected in three 5-gram Encore samplers.

No mixing or compositing will be performed on the sample material, thereby limiting the loss of

VOCs from the sample.

Additional sample volume will be collected so the laboratory can determine moisture content. This

additional sample material will be collected in a 2-ounce glass sample jar.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003

Page: 9 of 49

4.3.2 Hydrogeological Investigations

4.3.2.1 Groundwater Sampling During Drilling

At each location where groundwater is encountered, one to two groundwater samples will be collected from the soil boring using Geoprobe grab groundwater sampling equipment (i.e., Geoprobe Screenpoint 15 groundwater sampling device). Groundwater will be sampled using a peristaltic pump or disposable mini-bailers. The selection of equipment will be made by the field geologist based on observed water levels and potential for recharge to the rod string from the target saturated zone. All downhole equipment that are not dedicated will be decontaminated pursuant to the protocols outlined in Subsection 4.3.3. Each sample will be collected using the following methodology:

- The Geoprobe Screenpoint 15 groundwater sampler will be advanced to the selected depth. The rods will be pulled back to expose the screen to the water bearing formation, allowing groundwater to enter the rod string.
- The depth to the water level in the rod string and the total depth will be measured with an electrical sounding device (accuracy ± 0.01 feet). The depth to water and the time of measurement will be recorded. The reference point for these depths will be the top of the ground surface.
- The volume of standing water in the rod string will be calculated.
- A peristaltic pump or disposable bailer will be used for purging and sampling.
- A minimum of three well volumes will be removed from the rod string. After removing the third volume, a field measurement of pH, specific conductance, and temperature will be recorded in the field notebook. If sufficient groundwater recharge is present, purging will continue until the measurements for all three parameters have stabilized (±0.1 units for pH, ±10 percent for specific conductance and ± 1°C) for three consecutive rounds of readings. A maximum of five temporary

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0 Date: 8 October 2003 Page: 10 of 49

well volumes will be purged during sampling. WESTON standard operating procedures (SOPs) for measuring pH, conductivity, and temperature are presented in Appendix A.

- If insufficient groundwater is available and/or the rod string runs dry before three volumes have been removed, the sampler will be allowed to recharge for 15 minutes and then will be pumped dry again and allowed to recharge before sampling.
- Samples will be collected directly from the bailer or pump after purging has been completed. Samples will be collected for VOCs. All samples will be collected unfiltered.
- Sample bottles will be filled at an angle in order to limit splashing and bubbling. The VOA sample bottles will be filled such that no air space is present in the bottle after it is capped. If bubbles appear after the bottle is capped, a new sample will be collected. A new, preserved VOA container will be used to collect the sample. If bubbles persist, an unpreserved sample will be collected (the Field Sample Manager will note the absence of the preservative on the sample paperwork and in the field logbook).
- Samples will be maintained at 4°C with cold packs or ice after sample collection.

The sample container, volume and preservation requirements are presented in Table 4-3.

4.3.2.2 Groundwater Elevation Measurements

Water level measurements at the monitoring wells will be collected following the WESTON SOP (Appendix B) and using the following protocols:

- The water level probe and cable will be decontaminated before each use with a distilled water rinse.
- Depth to water will be measured with an electrical sounding device (accuracy ±0.01 ft). The reference point for this measurement will be the top of the inner well casing.
- The depth to water and the time will be recorded in a field logbook.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

WA No.: 155-R

Revision: 0 Date: 8 October 2003

Page: 11 of 49

4.3.3 <u>Decontamination Procedures</u>

All sampling equipment including pumps, tubing, stainless steel spoons, spatulas, scoops, bowls,

etc., will be decontaminated before being used to collect a sample. The decontamination protocol

for sampling equipment is presented in Table 4-4.

The working end of the Geoprobe rig and all downhole and associated boring equipment, tools and

materials will be decontaminated prior to intrusion at each new soil boring. Only decontaminated

equipment will be placed in a boring. All boring-related equipment will be decontaminated in

accordance with the protocols presented in Table 4-5.

The management of water generated during decontamination will be in accordance with the

requirements outlined in Section 4.9. All decontamination wastewater will be containerized.

A temporary decontamination pad will be constructed at the site. The pad will consist of heavy

plastic lining anchored by railroad ties and clean aggregate materials. The grade will be modified

to accommodate temporary storage of rinse water by constructing a trench at one end of the pad. The

pad dimensions shall be large enough to accommodate the Geoprobe rig.

4.4 FIELD QUALITY CONTROL SAMPLES

The sampling effort at the Ellsworth Industrial Park site will include the following types of field OC

samples:

Field duplicates.

Matrix spikes/matrix spike duplicates.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003 Page: 12 of 49

- Field blanks.
- Trip blanks.

Section A.7.3 of the Ellsworth Industrial Park site QAPP (Section 3) explains the purpose behind each type of QC sample. Sample containers and handling and shipment procedures that will be used are identical to those used for the investigative samples. Each field QC sample will be documented on a chain-of-custody form. Table 4-2 shows the specific level of QC effort for field activities. The following subsections detail the collection procedures for each QC sample type.

4.4.1 Field Duplicate Samples

Field duplicate samples will be collected at selected locations during soil and groundwater sampling at a 1-per-10 sample frequencies, using procedures identical to those used for the investigative samples. Duplicate samples will be analyzed for the same parameters as the investigative sample unless otherwise stated elsewhere in the FSP or QAPP. Duplicate samples will be collected by alternatively filling two sets of sample bottles from the same sample unit (e.g., bailer, split spoon, scoop, etc.). Where Encore samplers are utilized for soil sampling, duplicate samples will be collected directly adjacent to the location within a sample core where the investigative sample was collected. No mixing or compositing of samples will be conducted. For samples requiring chemical analyses, the VOA fraction for each duplicate sample will be collected immediately after the VOA fraction for the investigative sample to minimize the loss of VOCs during sample collection.

4.4.2 Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate samples (MS/MSDs) will be collected on a one per 20 sample (or less) basis for soil and groundwater sampling. MS/MSD samples are investigative samples on RFW155-2A-AOBN

Section: 4
Revision: 0

Date: 8 October 2003

Page: 13 of 49

which MS/MSD analyses are performed. MS/MSD analyses only apply to organic samples. Investigative soil and sediment samples assigned for MS/MSD do not require the collection of extra sample volume. However, soil collection in Encore samplers requires two additional 5-gram Encore samplers for each MS/MSD sample. Extra sample volume is required for aqueous MS/MSD analyses. For groundwater MS/MSD analyses, triple the normal volume is required for volatile organics.

Field blank, trip blanks and field duplicate samples will not be used as MS/MSD samples. All MS/MSD will be identified as such on all sample paperwork.

4.4.3 Field Blanks

Field blank samples will be collected during all water sampling events. One field blank will be collected for every 10 or fewer investigative aqueous samples collected during the field sampling activities. For groundwater samples, field blanks will be obtained by pouring ultra-pure water (laboratory-grade water) over and through a decontaminated or disposable sampling device such as a bailer or Screenpoint 15 sampler, and collecting the water in the required sample containers. All disposable sampler parts such as tubing will be replaced with unused or decontaminated equipment prior to collecting the field blank. Each field blank will be analyzed for the same parameters as the investigative samples in accordance with the same analytical methodologies. The U.S. EPA Region V CRL discourages the use of water blanks for soil and sediment samples; therefore, no field blanks will be collected for soil and sediment samples.

4.4.4 Trip Blanks

One trip blank sample will be enclosed in each sample shipment container in which aqueous VOA

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

WA No.: 155-KIG Section: 4

Revision: 0 Date: 8 October 2003

Page: 14 of 49

samples are included. All sample handling, volume, packaging and preservation requirements for

the trip blank will be identical to the investigative VOA samples. The trip blanks will be obtained

by pouring ultra-pure water (laboratory-grade water) directly in the sample containers under

laboratory-type conditions as soon as it is practicable (given the sample holding time) prior to the

beginning of a field sampling event. The trip blanks will then be subsequently placed in a sample

shipment container and accompany field personnel to the site. The trip blank will be documented

and identified as such on all sample documentation.

4.5 SAMPLE NUMBERING SYSTEM

All samples for analysis, including QC samples, will be given a unique sample number. The sample

numbers will be recorded in the field logbook, the chain-of-custody, and the shipment documents.

WESTON will assign each sample a project sample number. The project sample number highlights

the sample matrix and location, and will be used for documentation purposes in field logbooks, as

well as for presentation of the analytical data in WESTON memoranda and reports.

4.5.1 Project Sample Numbering System

The project sample numbering system will be composed of the following components:

Project Identifier

The first part of the project sample number will consist of a three-character designation. This three-

character code will be used to identify the Ellsworth Industrial Park site and the phase of the field

investigation. EIP corresponds to Ellsworth Industrial Park site field investigation.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003 Page: 15 of 49

Sample Type and Sample Location

This shall consist of the following:

• A two-character sample type code. For the proposed types of field sampling, the following codes may be utilized during this phase or subsequent investigation phases, as applicable:

GP - Geoprobe soil boring subsurface soil sample

GPW - Geoprobe grab groundwater sample

TW - Temporary well groundwater sample

MW - Monitoring well groundwater sample

RW - Residential well sample

PW - Municipal water supply well sample

SS - Surface soil (0 to 24 inches)

SW - Surface water sample

SD -Sediment

DS - Drum sample solid

DL - Drum sample liquid

LS - Lagoon sediment

A sample location code. The above sample type code will be combined with sample location identification (e.g, GP02 for Geoprobe soil boring "GP02," MW02 for monitoring well "MW02"). For field blanks and trip blanks, the two-character sample type code will be combined with FB for field blanks and TB for trip blanks (e.g, MWTB for a monitoring well trip blank).

Sequence Identifier

This shall consist of the following:

A two-digit sequence number that tracks the number of samples collected from a specific location. Sequence 01 refers to the first sample interval, and sequence 02

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Revision: 0
Date: 8 October 2003
Page: 16 of 49

refers to the second sample interval. Sample depths will not be a part of the sample code; rather, depth information will be recorded in the site field logbook and presented with the analytical results.

- If the sample is a field duplicate sample, the above will be combined with DP. If the sample is a matrix spike/matrix spike duplicate sample, the above will be combined with MSD.
- For field and trip blanks, the two-digit sequence number will denote the sequential number of field or trip blank sample collected for that sample type.
- Field duplicate samples will be submitted without reference to the laboratory (i.e., the laboratory will not be informed that the sample is duplicate).

Some examples of the WESTON project sample numbering system are as follows:

- 1. EIP-GP02-01DP: Ellsworth Industrial Park site; Geoprobe soil boring location 2; duplicate of first soil sample collected at this location.
- 2. EIP-GPW03-01: Ellsworth Industrial Park site; Geoprobe grab groundwater sample 3; first groundwater sample at this location.
- 3. EIP-SWTB-01: Ellsworth Industrial Park site; surface water sampling, first trip blank sample.
- 4. EIP-MWFB-03: Ellsworth Industrial Park site; monitoring well water sampling, third field blank sample.
- 5. EIP-MW01-01MSD: Ellsworth Industrial Park site; monitoring well location 1; first sample collected at this location; sample is a matrix spike/matrix spike duplicate sample.

Section: 4 Revision: 0

Date: 8 October 2003

Page: 17 of 49

4.6 SAMPLE DOCUMENTATION AND TRACKING

4.6.1 Field Records

Field Log Book

Field observations and other information pertinent to the collection of samples will be recorded in the field. All entries will be made in a bound logbook in ink. The entries will be detailed and descriptive so that a particular situation can be recalled without reliance on the collector's memory. Log books will be identified by unique sequential numbers. The data to be recorded for each sample will include date, time (24-hour military time reference), sample number, sample location, sample appearance, and name of the persons collecting the sample. In addition, general information will be recorded in the logbook daily, including personnel present at the site, level of protection being worn, and weather. Photographs will also be taken and logged to document sampling activities.

Geologic/Drilling Log

Drilling information will be recorded into the field log book, field data collection forms, or digital/electronic device and transferred to a geologic drill log. A separate log will be maintained for each boring. Instrument readings from the OVM used for field screening and health and safety monitoring will be recorded in the notes column of the log. Upon completion of the field work, the drill log information may be entered into a computer database as appropriate.

Field Measurement Data

Measurements of field parameters will be recorded in the field log book, field data collection forms, or digital device, including (as appropriate):

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0 Date: 8 October 2003 Page: 18 of 49

- Date, time and individual performing the measurements
- Sample location
- Weather conditions
- Parameter to be measured
- Model number of instrument used
- Calibration performed, including readings from calibration checks performed
- Reading

The units to be used for water quality parameters will include the following and/or others, as appropriate:

- pH units to the tenths decimal place
- Water level in feet to the one-hundredths decimal place
- Temperature in degrees Celsius, to the tenth of a degree
- Conductivity in umhos to the tenths place

Sample Collection Information

Samples collected will be recorded in the field log book, field data collection forms, or digital device with the following information, as appropriate:

- Sample location
- Depth of sample collection
- Sample matrix

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003 Page: 19 of 49

- Sample identification number
- Date and time of collection
- Any unusual appearances of the sample
- Parameters to be analyzed
- Date and time sample was released or received

4.6.2 Field Chain-of-custody Procedures

Field chain-of-custody (COC) procedures are presented in the QAPP, with a detailed summary in Subsection B.3 of the QAPP. Details on the completion of field sample COC documentation are discussed in Subsection 4.6.3 of the FSP.

4.6.3 Sample Documentation Forms

Required paperwork for laboratory samples includes chain-of-custody (COC), sample tags, and COC seals. All sample documentation forms will be completed by WESTON personnel in accordance with the requirements outlined in the *CLP* Guidance for Field Samplers (U.S. EPA April 2003) or the most recent version. The U.S. EPA is currently using the Forms II Lite Software (Version 5.1). The U.S. EPA Region V RSCC is responsible for providing WESTON with updates on changes in the sample documentation forms and requirements. The WESTON Sample Management Coordinator (SMC) will train all field personnel on any new documentation requirements before field activities begin.

All paperwork accompanying the samples being shipped to the laboratory will be sealed in a plastic

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003

Page: 20 of 49

bag that is taped to the inside of the cooler lid. Copies will be made of all sample documentation and retained for in-house files.

Chain-of-Custody/SAS Packing List Form

U.S. EPA's registered FORMS II Lite program will be used to document samples shipped to U.S. EPA or U.S. EPA designated CLP laboratories. U.S. EPA OERR's Analytical Operations/Data Quality Center (AOC) developed the Field Operations and Records Management System (FORMS) II Lite to generate sample labels and Traffic Reports and Chain of Custody (COC) forms. The system also tracks samples from the field to the laboratory and facilitates electronic capture of sample information into databases as well as exports data electronically as .xml, .dbf, or .txt files.

To maintain custody in accordance with the U.S. EPA requirements, the following sample documentation protocol must be implemented:

- Each sample shipment container must have at least one COC form enclosed with the samples.
- Each sample in a shipment container must be identified and documented on the accompanying COC form.
- The COC seal numbers on seals assigned to a particular cooler must be documented on the COC form in that cooler.
- The carrier service person does not have to sign the COC form if the custody seals remain intact. The airbill number must be written on the COC form.

Chain-of-Custody Seals

Chain of custody seals are provided by the U.S. EPA Region V RSCC.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003
Page: 21 of 49

- Two seals will be used per shipping container to secure the lid and provide evidence that the samples have not been tampered with.
- The COC seals must be covered with clean tape to avoid accidental damage during shipment.
- The COC seal numbers must be documented on the COC form.
- All sample shipment containers require COC seals.

Sample Tags

Sample tags are provided by the U.S. EPA Region V RSCC. They are specific to Region V. The information that is printed out for the sample label will be printed in duplicate and the copy will be affixed to the sample tags. Sample tags will be utilized for CLP RAS and SAS analyses.

- Each sample container must have a Sample Tag affixed to it with a string.
- Sample Tag numbers are recorded on the COC form.

4.7 <u>SAMPLE HANDLING</u>

4.7.1 Sample Containers and Sample Preservation

All samples collected for analysis will be containerized, preserved, packaged and shipped in accordance with U.S. EPA Region V CRL Sample Handling Manual, (U.S. EPA, 1989), CLP Guidance for Field Samplers (U.S. EPA, 2003), The U.S. Department of Transportation's regulations (49 CFR 173 to 177) and Dangerous Goods Regulations, (International Air Transport Association (IATA), (2003). Table 4-3 identifies the required sample containers, sample volumes, sample preservation requirements, and holding times associated with all parameters and media applicable RFW155-2A-AOBN

Section: 4 Revision: 0

Date: 8 October 2003

Page: 22 of 49

to the Ellsworth Industrial Park site field investigation. WESTON will obtain sample containers according to U.S. EPA specifications as described in Section 4.10.

4.7.2 Sample Packaging and Shipment

All samples shipped from the Ellsworth Industrial Park site must be shipped in accordance with U.S. Department of Transportation regulations and must comply with *Dangerous Goods Regulations* (IATA, 2003) if shipped by air transportation.

Following sampling, the exterior of all sample bottles will be initially decontaminated near the sampling location by wiping with a moist cloth. The filled sample containers will not be sprayed with water during decontamination because this water could contact the sample if the container was not tightly sealed. In preparation for shipment to the CLP laboratories, all samples will be packaged in accordance with the following general procedures:

- Check to make sure container cap is securely tightened. Seal with tape. Mark liquid levels of water samples if bottles are partially full.
- Make sure the sample names and sample tags are securely attached to the sample containers. Place each container in a zip-lock baggie, ensuring that the sample tags can be read.
- Samples will be placed in a shipment container lined with a large polyethylene bag. Enough vermiculite or equivalent absorbent material will be packed around the samples to minimize the possibility of sample container breakage. The temperature will be maintained at 4° C with cold packs or ice sealed in plastic bags as appropriate to the sample. The remaining space in the container will be filled with additional packing material and the large bag sealed.
- Place COC forms in a zip-lock bag and tape to inside of shipment container lid.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

WA No.: 155-RICO

Section: 4 Revision: 0

Date: 8 October 2003 Page: 23 of 49

• Close shipment container and seal it shut with strapping tape. If shipment container has a drain port, seal it shut with tape. Place custody seals across seam between the container lid and base so that custody seal would be broken if shipment container was opened. Cover custody seals with waterproof tape.

• Affix airbill with shipper's and recipient's names and addresses to top of shipment container. Affix a second mailing label with the same information to the top of container in case airbill becomes detached from container during shipment. Place "This End Up" labels on container as specified by IATA.

The WESTON FTL must contact the WESTON SMC to confirm sample shipment dates for all analyses. The FTL will notify the SMC of any last-minute changes in sampling schedule that will affect the sample shipment schedule.

4.8 SAMPLE TEAM ORGANIZATION

The sampling team organization is discussed in Subsection A.4 of the QAPP.

4.9 MANAGEMENT OF INVESTIGATION-DERIVED WASTES

For purposes of this FSP, investigative-derived wastes (IDW) are defined as any by-product of the field activities that is suspected or known to be contaminated with hazardous substances. The performance of field activities will produce waste products such as spent drilling mud, development and purge groundwater, decontamination wastewater, drill cuttings, and expendable personnel protective equipment. As much as possible, the drill cuttings from the soil borings will be put back in the soil borings. The remaining drill cuttings will be containerized in 55-gallon drums.

In order to collect the decontamination wastewater, a portable or temporary decontamination pad will be set up on site. Wastewater will be pumped from the decontamination pad, collected, and

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Ellsworth Industrial Park Draft Field Sampling Plan WA No.: 155-RICO-B51W Section: 4 Revision: 0

Date: 8 October 2003 Page: 24 of 49

containerized. Wastewater and purge water from the developing and sampling of groundwater will be stored in DOT-approved drums. Composite disposal samples will be collected and analyzed. Sampled wastes will be disposed of in an offsite waste disposal facility.

Each type of waste will be segregated during the field activity and containerized separately. All storage containers will be labeled appropriately. Wastes will be stored at the site in a secured staging area until the analytical results of the site investigation are interpreted. At that time, each segregated waste will be evaluated based on the field data and disposal arrangements executed in accordance with appropriate local, state, or federal regulations. If deemed appropriate, the management of the wastes will be incorporated into the remedial action for the site. WESTON will refer to the U.S. EPA's Management of Investigation-Derived Wastes During Site Inspections (U.S. EPA, 1991) for guidance on off-site disposal policy, if this action is deemed necessary.

4.10 SAMPLE CONTAINER PROCUREMENT

All sample containers being used for chemical analysis to be used during the Ellsworth Industrial Park site sampling program will be procured by WESTON. All sample containers (bottles) will be prepared according to the procedures specified in U.S. EPA's Specifications and Guidance for Obtaining Contaminant-Free Sample Containers, (U.S. EPA, 1992) or the most current revision. It will be ensured that the bottles used for the sampling activity do not contain target organic and inorganic contaminants exceeding the level specified in the above-mentioned document. Specifications for the bottles will be verified by checking the supplier's certified statement and analytical results for each bottle lot, and will be documented on a continuing basis. The field team leader or the leader's designee will record the bottle lot numbers (if applicable) associated with each sample collected during the Ellsworth Industrial Park site sampling effort. This data will be maintained in the project evidence file and will be available, if requested, for U.S. EPA review.

I:\WO\RAC\155\33030S-4FSP.WPD

RFW155-2A-AOBN

Ellsworth Industrial Park
Draft Field Sampling Plan

WA No.: 155-RICO-B51W

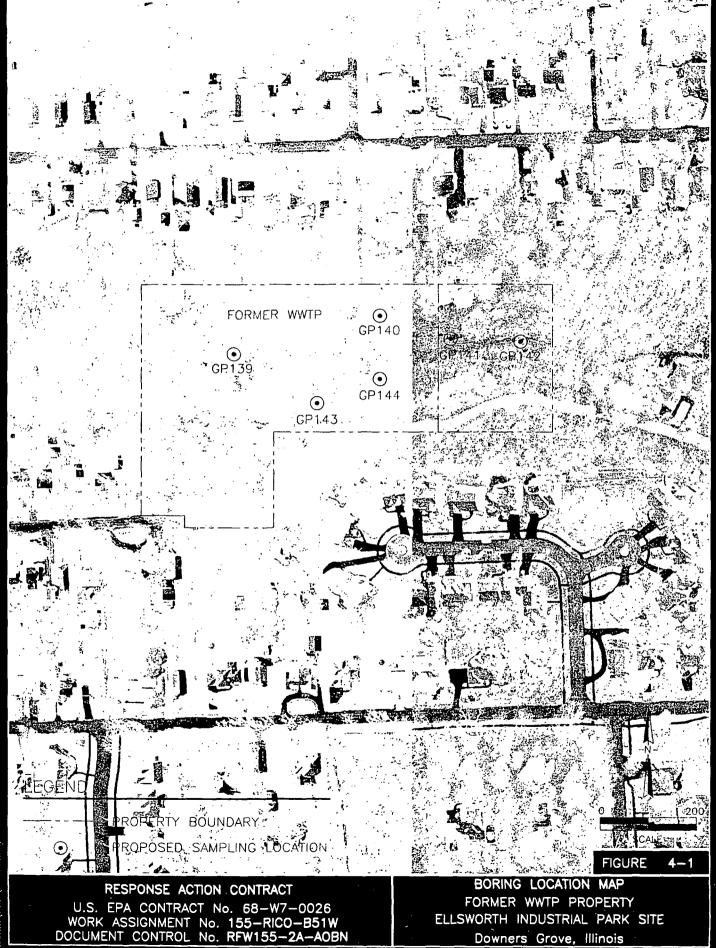
Section: 4 Revision: 0

Date: 8 October 2003
Page: 25 of 49

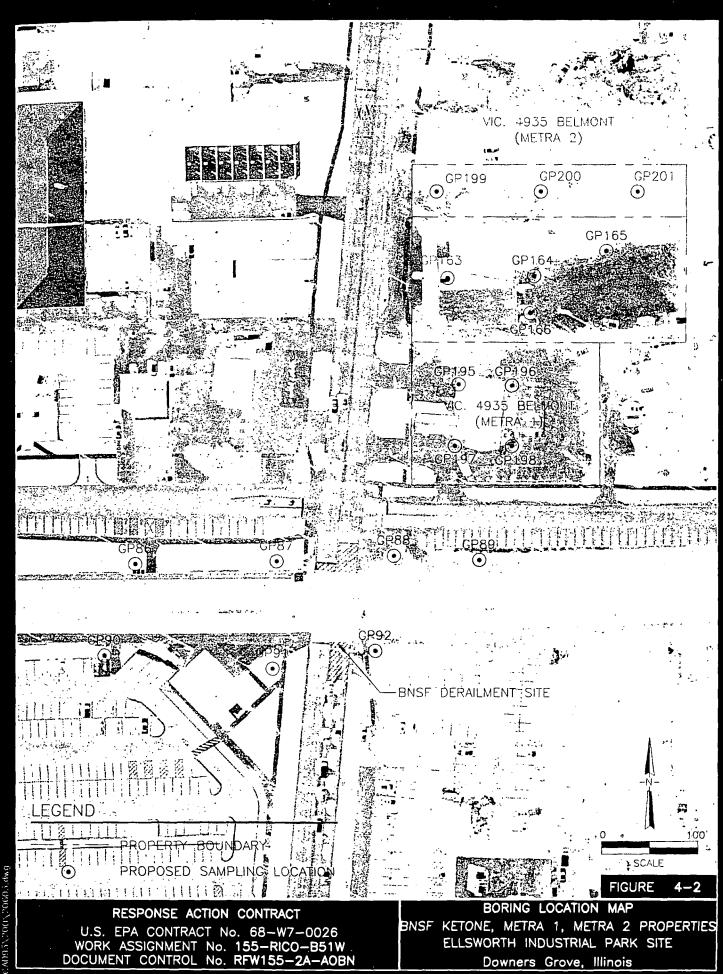
In addition, the data for field blanks and trip blanks will be monitored for contamination, and corrective actions will be taken as soon as a problem is identified. This will be accomplished either by discontinuing the use of a specific bottle lot, contacting the bottle suppliers for retesting the representative bottle from a suspect lot, resampling the suspected samples, validating the data (taking into account that the contaminants could be introduced by the laboratory (e.g., by common laboratory solvents, sample handling artifacts) or could be bottle QC problems) so as to make an educated determination if the bottles and hence, the data are still usable, whichever is appropriate.

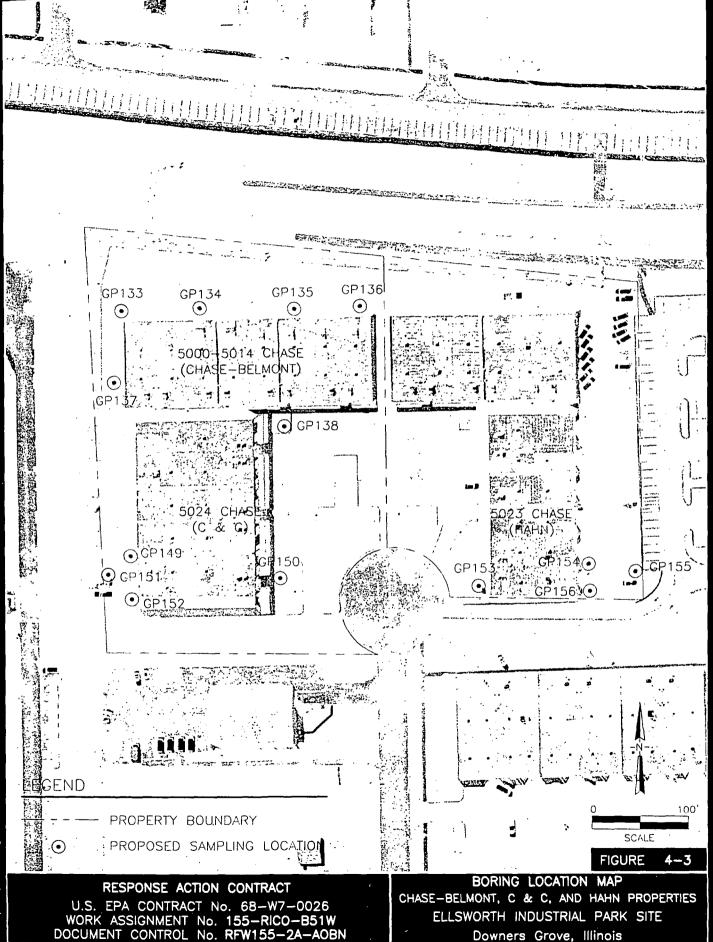
For the Ellsworth Industrial Park site, the corrective actions will be conducted comprehensively to avoid the use of identified contaminated lots from other projects, and to ensure that if the bottle suppliers are deemed unresponsive or unable to provide cleaned bottles as specified, then other U.S. EPA-related projects are not negatively affected by the use of the noncompliant bottles.

If resampling is deemed necessary, WESTON will require authorization for additional effort. Any schedule delays will be brought to the attention of the U.S. EPA RPM/WAM.

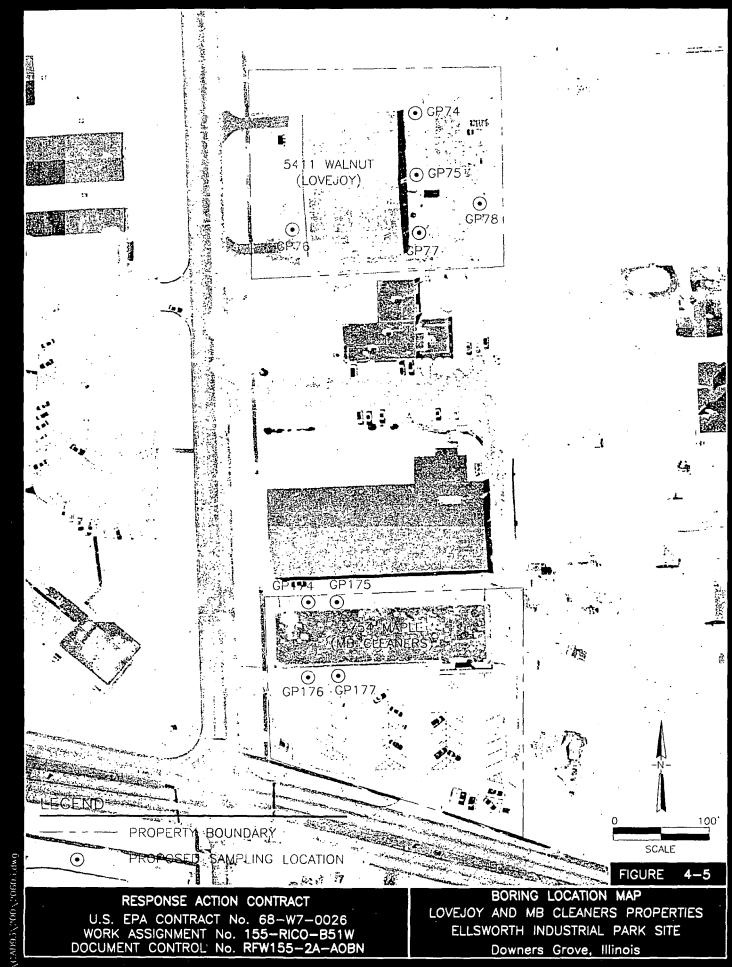


1.CAD9.51.7001.7060.5.0

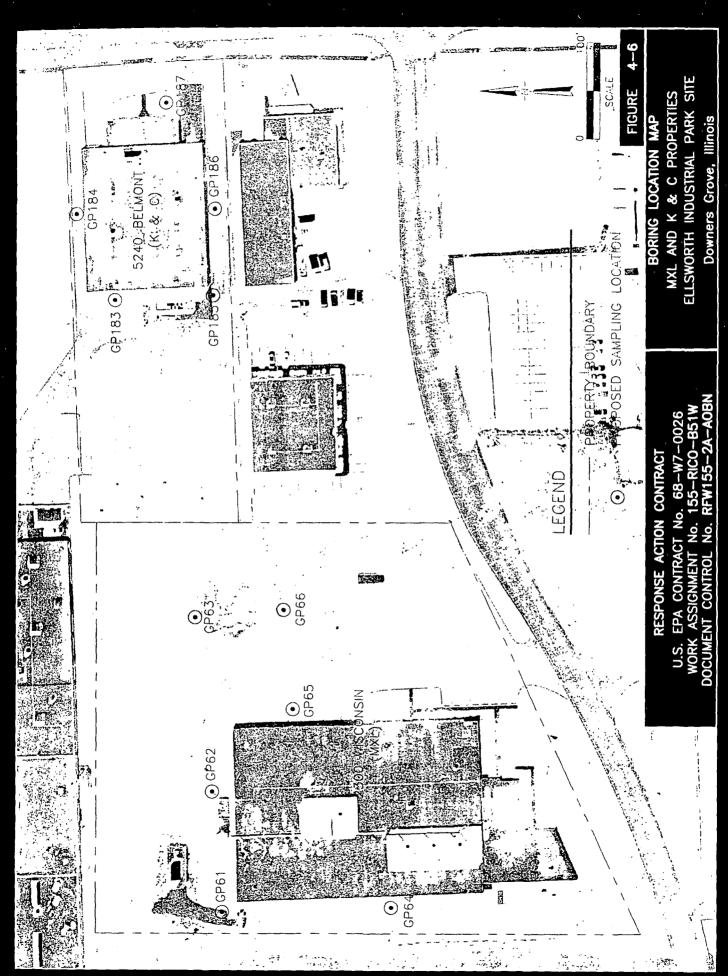


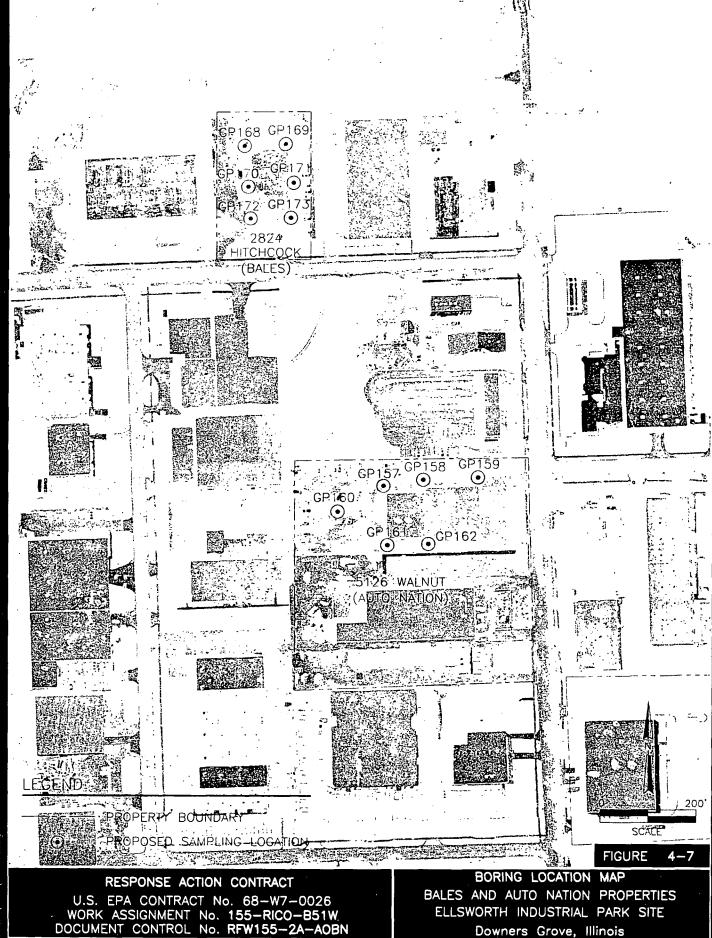


CAD9.5\200\2060



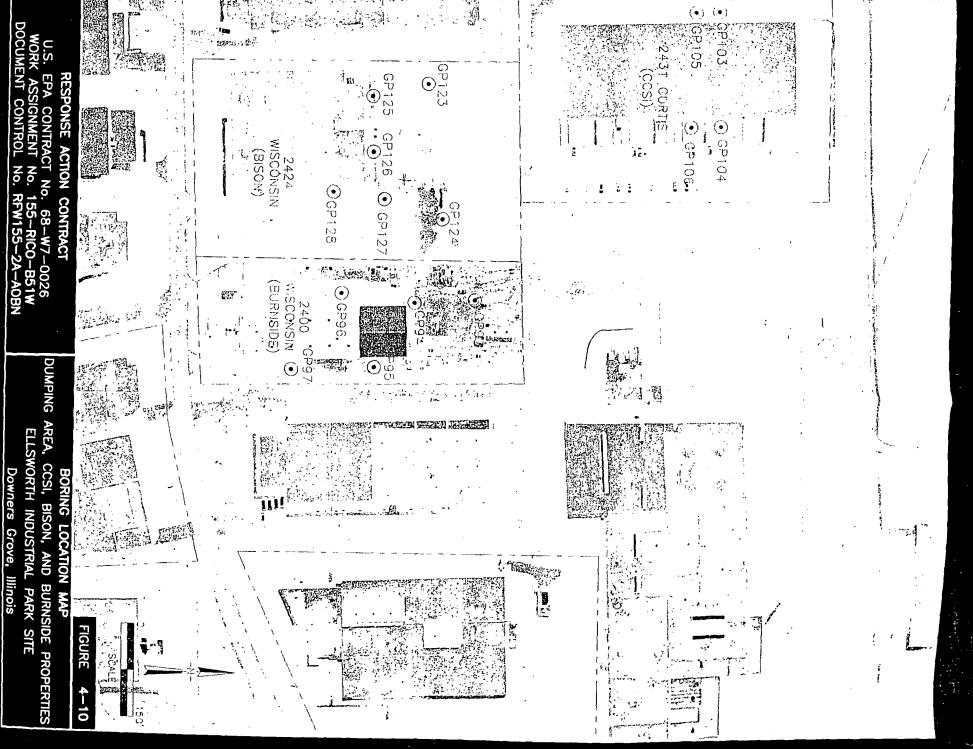
4-30



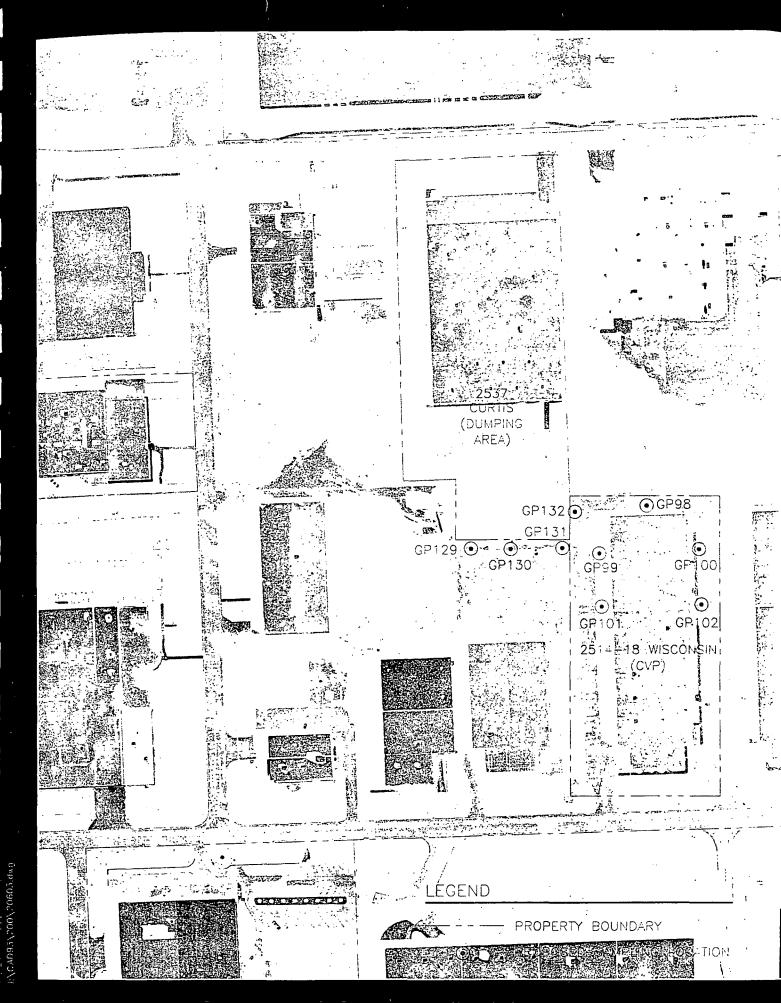


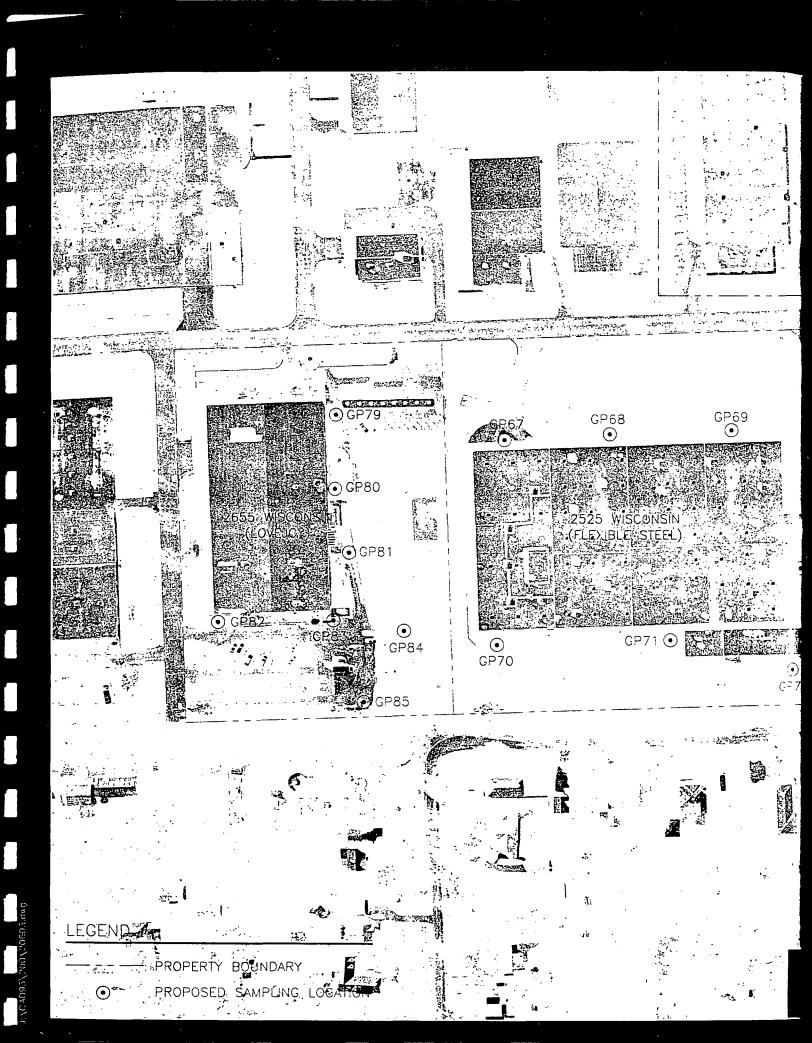
302\002\960V3\



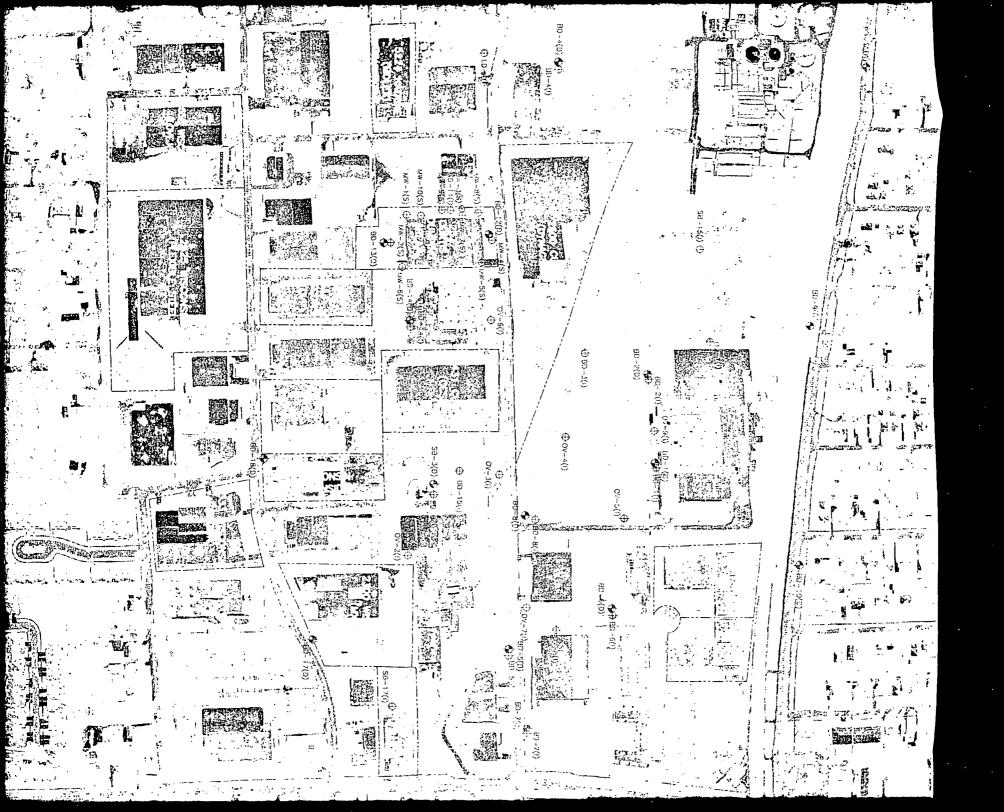


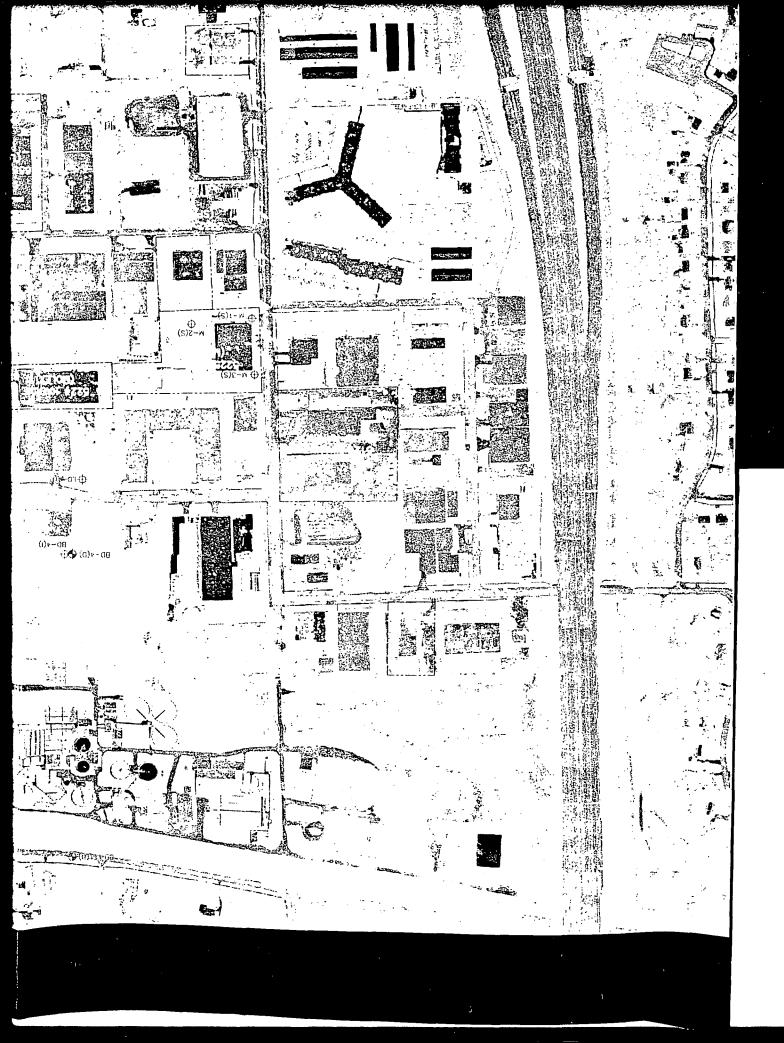
4-35















Ellsworth Industrial Park Sit WANO: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 38 of 49

Table 4-1

Proposed Sampling Plan and Rationale Ellsworth Industrial Park Site Downers Grove, Illinois

Site	Boring ID	Description/ Rationale of Location						
Dynagear	GP54	West side of building, evaluate groundwater constituents detected in previous studies on west side of						
2500 Curtis		building adjacent to west property line.						
	GP55	Random location, north side of building						
	GP56	Northeast portion of building, loading dock area, storage area						
	GP57 .	Northeast corner of building, loading docks, container storage area, possible staining noted 19						
,		aerial photography.						
•	GP58	West side of building, evaluate groundwater constituents detected in previous studies on west side of						
		building adjacent to west property line.						
	GP59	West side of building, evaluate groundwater constituents detected in previous studies on west side of						
÷		building adjacent to west property line.						
	GP60	East side of property, adjacent to retention basin shown in multiple aerial photographs						
MXL	GP61	Northwest corner of building, outside storage area and drainage ditch noted in 1967 and 1975 aerial						
2300 Wisconsin		photography						
	GP62	North side of building, possible stacked storage area noted 1990 aerial photography.						
	GP63	Wooded outlot northeast portion of property in area of noted drainage ditch 1967and 1975 aerial						
		photography						
•	GP64	Random location west side of building.						
	GP65	East side of building, area where drainage ditches originate 1967 and 1975 aerial photography						
	GP66	Wooded outlot northeast portion of property in area of noted drainage ditch 1967 and 1975 aerial						
	·	photography						
Flexible Steel	GP67	Random location, north side of building						
2525 Wisconsin	GP68	Random location, north side of building						
i	GP69 ·	Random location, north side of building						
	GP70	South side of building, manmade drainage channel noted along south side of building in 1978 aerial						
		photo						
	GP71	South side of building, ditch noted in area in 1967 aerial photo just to east, manmade drainage						
		channel noted in 1978 aerial photo						
	GP72	East side of building, refuse container storage area noted 1972 aerial photo						
	GP73	South side of building, ditch noted in area in 1967 aerial photo						

I:\WO\RAC\155\33030T4-1,WPD RFW155-2A-AOBN

Ellsworth Industrial Park Site WANO.: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 39 of 49

Table 4-1

Site	Boring ID	Description/ Rationale of Location
Lovejoy	GP74	Northeast corner of building, outside storage area
5411 Walnut	GP75	East central side of building, storage area
•	GP76	West side of building adjacent to main overhead access doors
	GP77	Southeast corner of building, outside storage area
	GP78	Random location east side of building, outside storage area
Lovejoy	GP79	Northeast corner of building, ground scar noted in 1981 aerial photo
2655 Wisconsin	GP80	East side of building, north of possible drum storage area 1972 and 1975 aerial photo
	GP81	East side of building, south of possible drum storage area and at beginning of drainage ditch noted in 1972 aerial photo
	GP82	Southwest corner of building
	GP83	Southeast corner of building, area of debris and soil staining noted in 1972 and 1975 aerial photograph. Horizontal and vertical tanks and soil staining noted in 1981 aerial photo.
-	GP84	Open area southeast of building, staining, outside storage, and dark toned soil noted 1975 and 1978 aerial photographs
	GP85	Near south property line, just south of cleared area and soil stain area noted in 1972 and 1975 aerial photograph.
BNSF Derailment	GP86	Northwest of intersection Belmont and Burlington, access available open grassy area
Site	GP87	Northwest of intersection Belmont and Burlington, access available open grassy area
Belmont and Warren	GP88.	Northeast of intersection Belmont and Warren, access available BNSF access road
	GP89	Northeast of intersection Belmont and Warren, access available BNSF access road
	GP90	Adjacent to station building southwest of intersection
, i	GP91	Adjacent to station building southwest of intersection
	GP92	Southeast of intersection Belmont and Warren, limited access area

Ellsworth Industrial Park Site WANO.: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 40 of 49

Table 4-1

Proposed Sampling Plan and Rationale Ellsworth Industrial Park Downers Grove, Illinois

Site	Boring ID	Description/ Rationale of Location					
Burnside	GP93	North side of building, drainage ditch noted 1975 aerial photo, debris noted 1978 aerial photo,					
2400 Wisconsin	GP94	North side of building, drainage ditch noted 1975 aerial photo,					
	GP95	Random location, east side of building					
	GP96	Random location, west side of building					
	GP97	Random location, east side of building					
CVP	GP98	Random location, north side of building					
2514-18 Wisconsin	GP99	Random location, west side of building					
	GP100	Random location, east side of building					
	GP101	Random location, west side of building					
	GP102	Random location, east side of building					
CCSI	GP103	Random location, west side of building					
2431 Curtis	GP104	Random location, east side of building					
	GP105	Random location, west side of building					
	GP106	Random location, east side of building					
Spannegel	GP107	Random location, norther portion of property, open area					
2732 Wisconsin	GP108	Northwest corner of building, dark toned soil, disturbed ground and faint ground scar noted 1978					
		aerial photography					
	GP109	Random location, northeast corner of building					
	GP110	Random location, west side of building					
	GP111	Random location, east side of building					

I:\WO\RAC\155\33030T4-1.WPD

RFW155-2A-AOBN

Ellsworth Industrial Park Site WANO.: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 41 of 49

Table 4-1

Proposed Sampling Plan and Rationale Ellsworth Industrial Park Downers Grove, Illinois

Site	Boring ID	Description/ Rationale of Location						
Molex	GP112	Random location, north side of building						
5224 Katrine	GP113	Random location, north side of building						
	GP114	Northwest corner of building, location of vertical tank, unknown use.						
	GP115	Random location, near southwest corner of building						
	GP116	South side of building, outside storage area noted 1990 aerial photography						
Molex	GP117	Random location, north side of building						
5225 Walnut	GP118	Random location northeast corner of building						
	GP119	West side of building adjacent to loading docks						
	GP120	Random location, east side of building.						
	GP121	Open area east side of property, disturbed ground noted 1995 aerial photography						
	GP122	Random location, near southeast corner of building.						
Bison 2424 Wisconsin	GP123	Open area northwest portion of property, dart toned mounded material noted 1978 aerial photograph						
•	GP124	Open area northeast portion of property, drainage ditch noted 1978 and 1981 aerial photos,						
	GP125	North side of building, outside storage area, dark toned soil, and probable staining noted 1978 aerial photo, outside storage along north wall of building noted in 1990 aerial photo						
	GP126	North side of building, outside storage area, dark toned soil, and probable staining noted 1978 aerial photo, outside storage along north wall of building noted in 1990 aerial photo						
	GP127	Northeast corner of building, drainage ditch noted 1978 aerial photo, outside storage along north wall of building noted in 1990 aerial photo						
	GP128	Random location, east side of building.						
Alleged Dumping	GP129	Back of parking lot Norwood property, along property line south of alleged dumping area						
Area	GP130	Back of parking lot Norwood property, along property line south of alleged dumping area						
2537 Curtis	GP131	Back of parking lot Norwood property, along property line south of alleged dumping area						
	GP132	Back of parking lot CVP property, along property line east of alleged dumping area						

I:\WO\RAC\155\33030T4-1.WPD

RFW155-2A-AOBN

Ellsworth Industrial Park Site WANO:: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 42 of 49

Table 4-1

Site	Boring ID	Description/ Rationale of Location					
Chase-Belmont	GP133	Loading dock area north side of building					
5000-5014 Chase	GP134	Loading dock area north side of building					
	GP135	Loading dock area north side of building					
-	GP136	Loading dock area north side of building					
	GP137	Access entryway west side of building					
	GP138	Random location south side of building, center area					
Former WWTP	GP139	Location of former pond/lagoon in 1956 aerial photography					
South of Curtis and	GP140	Location of former structures/buildings/storage areas 1963 aerial photography					
Glenview Streets	GP141	Location of former structures/buildings/storage areas 1963 aerial photography					
·	GP142	Location of former structures/buildings/storage areas 1963 aerial photography					
	GP143	Location of former pond/lagoon in 1956 aerial photography					
	GP144	Location of former structures/buildings/storage areas 1963 aerial photography					
Maple Plaza Cleaners	GP145	Random location north side of building unit, front of business					
2265 Maple	GP146	Random location south side of building unit					
	GP147	Random location north side of building unit, front of business -					
	GP148	Random location south side of building unit					
C & C	GP149	Random location west side of unit, loading dock area					
5024 Chase	GP150	Random location east side of building, nearest access front of building					
	GP151	Storage/parking area west side of lot, west side of building, light toned material noted 2001 aerial photography					
	GP152	Random location west side of unit, loading dock area					

Ellsworth Industrial Park Site WANO.: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 43 of 49

Table 4-1

Site	Boring ID	Description/ Rationale of Location					
Hahn	GP153	Random location east side of building, nearest access front of building					
5023 Chase	GP154	Randon location east side of unit					
-	GP155	Outside storage area, dark toned material, possible soil staining 1978 aerial photography.					
	GP156	Loading dock east side of unit.					
Auto Nation	GP157	Northwest corner of building					
5126 Walnut	GP158	North side of building, central portion					
	GP159	Northeast corner of building					
	GP160	Random location, outside storage lot					
	GP161	Southwest corner of building					
	GP162	South side of building, central portion					
Ketone	GP163	Storage area north side of main building					
4935 Belmont	GP164	Storage /parking area east side of main building					
	GP165	Random location east side of property in parking lot/storage area					
	GP166	Storage /parking area east side of main building					
	GP167	Random location east side of property in parking lot/storage area					
Bales	GP168	Northwest corner of building, outside storage area with crates, debris, and dark toned objects noted in					
2824 Hitchcock		2001 aerial photography					
	GP169	Northeast corner of building					
	GP170	West side of building, dark stained soil noted 2001 aerial photography					
	GP171	East side of building					
·	GP172	Southwest corner of building					
	GP173	Southeast corner of building					

Ellsworth Industrial Park Site WANO.: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 44 of 49

Table 4-1

Proposed Sampling Plan and Rationale Ellsworth Industrial Park Downers Grove, Illinois

Site	Boring ID	Description/ Rationale of Location
MB Cleaners	GP174	Random location north side of building unit
2754 Maple	GP175	Random location north side of building unit
	GP176	Random location south side of building unit, front of business
	GP177	Random location south side of building unit, front of business
Maple Grove	GP178	West side of main building in front of large overhead access doors
Autotomotive	GP179	Southwest corner of building
2315 Maple	GP180	Random location, auto/equipment storage area.
	GP181	Southeast corner of building, outside storage area.
	GP182	Random location, auto/equipment storage area.
K & C	GP183 ·	Northwest corner of building, north of existing storage area
5240 Belmont	GP184	Random location in driveway, north side of building
	GP185	West side of building adjacent to existing storage, possible staining noted 1975 aerial photography
·.	GP186	Random location in driveway, south side of building
	GP187	Random location east side (front) of building.
Litton	GP188	Northwest corner of building
2333 Wisconsin	GP189	Random location, northeast corner of building
	GP190	West central side of building, dark toned material and disturbed ground noted 1978 and subsequent aerial photographs
	GP191	West central side of building, dark toned material and disturbed ground noted 1978 and subsequent aerial photographs
	GP192	West side of building, disturbed ground noted 1963 aerial photo under adjacent structure, outside storage with possible drums and tanks noted in 1978 and 1981 aerial photos
	GP193	Southwest corner of building, dark toned soil noted 1967 and 1975 aerial photo under adjacent structure
	GP194	Southeast corner of building, drainage ditch noted along south side of building in multiple aerial photos.

I:\WO\RAC\155\33030T4-1,WPD

RFW155-2A-AOBN

Ellsworth Industrial Park Site WANo.: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page 45 of 49

Table 4-1

Site	Boring ID	Description/ Rationale of Location	
Metra 1	GP195	Northwest corner of former structure	
Vic. 4935 Belmont	GP196	Northeast corner of former structure	-
	GP197	Southwest corner of former structure	
	GP198	Southeast corner of former structure	
Metra 2	GP199	Random location west side of property	•
Vic. 4935 Belmont	GP200	Random location center of property	
	GP201	Random location east side of property	

Ellsworth Industrial Park WANo.: 155-RICO-B51W Draft Field Sampling Plan

Section: 4 Revision: 0

Date: 8 October 2003 Page: 46 of 49

Table 4-2

Summary of Groundwater and Soil Sampling and Analysis Program Ellsworth Industrial Park Downers Grove, Illinois

			In	vestigat	ive	Fie	ld Dupli	cate	F	ield Blar	ık	N	MS/MSD	ı	
Sample Matrix	Field Parameters	Laboratory Parameters	No.	Freq.	Total	No.	Freq.	Total	No.	Freq.	Total	No.	Freq.	Total	Matrix Total*
Groundwater- Direct push technology	Conductivity, Temperature, and pH	CLP RAS Volatile Organic(OLC) Compounds	185	1	185	19	1	19	19	1	19	10	1	10	223
Soil- Direct push technology	Conductivity, Temperature, and	CLP RAS Volatile Organic Compounds (OLM)	370	1	370	37	1	37	NA	NA	NA	18	1	18	407

MS/MSDs are not additional samples, but are instead investigative samples on which MS/MSD analyses are performed. MS/MSDs are for organic samples only.

^{*}The matrix total does not include trip blank samples and MSMDs samples. One trip blank will be shipped with every shipment container of aqueous VOA samples.

Ellsworth Industrial Park WA No.: 155-RICO-B51 W Draft Field Sampling Plan Section: 4 Revision: 0 Date: 8 October 2003 Page: 47 of 49

Table 4-3

Sample Container, Volume, and Preservation Requirements Ellsworth Industrial Park Site Downers Grove, Illinois

Matrix Type	Analysis	Sample Concentration Level	No. of Bottles	Type of Bottles	Preservatives	Technical Holding Time*
Groundwater -Direct	Volatiles	Low ,	2	40-mL glass vials	Cool, 4°C 4 drops 1:1 HCl to pH <2	14 days
Soil- Direct Push Technology	Volatiles	Low	3	Encore samplers per sample (5 gram each)	Cool, 4°C, lab to preserve.	48 hours for preservation. 14 days analysis
	Moisture content	NA	-1	2-ounce glass jar		_

^{*} All holding times are from the date of sample collection.

Note: Aqueous MS/MSD samples will require triple the normal volume for volatile organics. Soil MS/MSD will require 2 additional Encores. One trip blank will accompany each aqueous VOA shipment container. Trip blanks accompanying water samples will be collected in two 40-mL glass vials. No trip blank will be sent for soil samples. Additional soil volume will be collected and sent for percent

moisture.

Ellsworth Industrial Park WA No.: 155-RICO-B51 W Draft Field Sampling Plan

Section: 4 Revision: 0

Date: 8 October 2003 Page: 48 of 49

Table 4-4

Standard Decontamination Protocol for Sampling Equipment Ellsworth Industrial Park Downers Grove, Illinois

Step	Procedure
1	Scrub equipment thoroughly with soft-bristle brushes in a phosphate-free, low-sudsing detergent solution.
2	Rinse equipment with tap water by submerging and/or spraying. (See note below.)
3	Rinse equipment with reagent-grade distilled/deionized water until dripping and allow to air dry for 1 to 2 minutes.
4	Rinse equipment a second time with deionized water by spraying until dripping.
5	Place equipment on polypropylene or aluminum foil and allow to air-dry for 5 to 10 minutes.
6	Wrap equipment in polypropylene or aluminum foil for handling and/or storage until next use.

Note: The decontamination liquids will be managed as described in Section 4.9. If sampling equipment was used to collect oily or adhesive types of contaminated media, or the presence of organic compound residue is suspected, a rinse via spraying with isopropanol will be included after Step 2.

I:\WO\RAC\155\33030T4-4.WPD

RFW155-2A-AOBN

This document was prepared by Weston Solutions, Inc., expressly for U.S. EPA. It shall not be released or disclosed in whole or in part without the express, written permission of U.S. EPA.

Ellsworth Industrial Park WANo: 155-RICO-B51W Draft Field Sampling Plan Section: 4 Revision: 0

Date: 8 October 2003 Page: 49 of 49

Table 4-5

Standard Decontamination Protocol for Drilling Equipment Ellsworth Industrial Park Downers Grove, Illinois

Step	Procedure
1	Move the drilling rig or other equipment/materials to the designated decontamination area at the site.
2	Scrub equipment thoroughly with soft-bristle brushes in a phosphate-free, low-sudsing detergent solution.
. 3	Pressure wash both inside and outside of the probes and rods (See note below) and any pertinent portion of the rig.
4	Place all decontaminated well materials (e.g., well casing, well screen) on clean polypropylene sheeting until use.

Notes:

Pressure washing will continue until all solid material and/or visible contamination is removed.

The decontamination liquid will be managed as described in Section 4.9.

SECTION 5

THIS PAGE INTENTIONALLY LEFT BLANK